ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES
(OAPEC)

2015 42

The Secretary General's 42th Annual Report

ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES (OAPEC)

42

2015

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ORGANIZATION OF ARAB PETROLEUM
EXPORTING COUNTRIES (OAPEC)

ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES (OAPEC)

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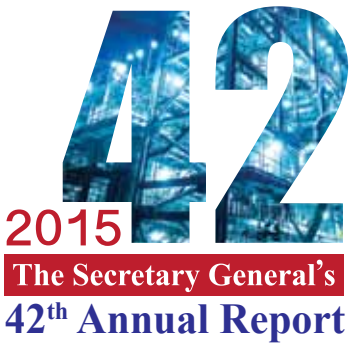

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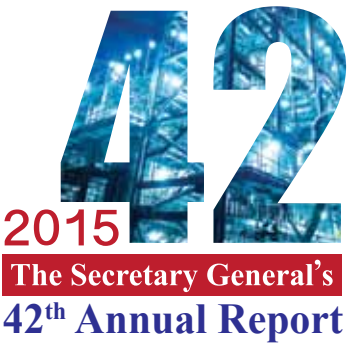

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The Arab Center for Energy Studies

Dr. Samir M. El Kareish	Director of the Technical Affairs Department
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* The Finance and Administrative Affairs Department is currently under the supervision of the Secretary General

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PREFACE

PREFACE

I have the pleasure to introduce the Secretary General's 42nd Annual Report for the year 2015.

The report presents the most important Arab and international oil and natural gas developments. It thoroughly analyses current and future prospects of the global petroleum industry in general, and in OAPEC member countries in particular. The report also gives an overview of the Arab and international new and renewable energy resources developments.

The report comes at a time when oil prices continue to plunge sharply into unprecedented levels for years. This is a continuation of the drop that started in the middle of 2014 leading to increasing financial burdens and economic challenges facing oil producing and exporting countries, including OAPEC members, whose economies depend mainly on oil revenues. The year 2015 witnessed the continuation of the delay or total stop of some energy, infrastructure, and public services projects. Negative impacts of the dropping oil prices have hit most of the Arab non-oil countries whether through financial transfers, aid programmes, direct loans, or joint ventures.

OAPEC member countries have worked hard to handle these new challenges through a number of economic decisions that encourage economic diversity. As for the energy industry, these countries have tackled it from two main channels; firstly, on the domestic level: various legislations and laws have been put in force on fuel price libralisation, lifting subsidies off some petroleum products, raising energy prices, compulsory energy consumption rationalization at private and public facilities, as well as merging some petroleum companies and projects, in addition to other measures to save their national economies. Secondly, on international level: OAPEC member countries are keen on direct dialogue with major oil and natural gas producing and exporting countries, as well as, international organizations concerned with energy, oil, and natural gas, in order to talk transparently and objectively about the global oil market prospects and their implications for OAPEC member countries.

We hope that 2016 would witness a tangible improvement of the global economy, which would have positive impact on the recovery

of the world's oil, natural gas, and energy market in general and consequently on the member countries.

The world witnessed a historic moment in 2015 represented in the success of the world countries in concluding the Paris Agreement on Climate Change, which crowned the 21st Conference of the Parties (COP21) in Paris, France, in December 2015, and the tough and long pre-COP21 international negotiations for long years. The new global agreement is an ambitious agreement of binding nature. The agreement will enter into force after 55 countries that account for at least 55% of global emissions have deposited their instruments of ratification. The new agreement on climate change will replace the Kyoto Protocol that will expire in 2020.

OAPEC Secretariat General on its part will continue following up the UNFCCC dossier and will cooperate with all relevant Arab and international parties in this regard in order to serve the interests of its members.

It is my pleasure too that the report is released concurrently with the 47th anniversary of founding the OAPEC on 9 January 1968, which has witnessed the beginning of an important era in the joint Arab energy cooperation. Over 4 decades, OAPEC has been encouraging cooperation in the various economic activities of the petroleum industry. It has contributed actively and distinguishably in Arab, regional, and international petroleum and energy events.

The Report consists of two parts:

Part one introduces the main features of the global 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 of oil and energy consumption in Arab countries in general, and the OAPEC member countries in particular. This part includes also an extensive presentation of the Arab and international developments in the exploration, production and reserves of energy resources, downstream industries (refining/transport/petrochemicals), and natural gas consumption and trade.

Part two covers conferences and seminars either organized by or attended by OAPEC Secretariat General during 2015. Of the most important events were the Ministerial Council and Executive Bureau

meetings, the 23rd Forum of the Fundamentals of Oil and Gas Industry, and the meetings organized by the Secretariat General at the level of the gas industry experts, and Databank liaison officers, and other fields. This part also reviews the economic and technical studies and reports prepared by the organization or which the organization has taken part, including the Join Arab Economic Review.

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

Finally, We would like to reiterate OAPEC member countries' commitment to continue playing their pioneer role as main oil and natural gas suppliers to the world, in spite of the domestic challenges due to the continued increase of local energy consumption, in addition to, the security developments of some member countries that led to the damage or destruction of some petroleum facilities, as well as, the external challenges, most significant of which are the rapid development of unconventional oil and natural gas production and plans to export it to the world market, and the policies supporting renewable energy resources on the expenses of fossil fuel resources (oil and natural gas).

The Secretariat General hopes that by releasing the new edition of the Secretary General's Annual Report, experts and those interested in the Arab and international oil, natural gas, and energy industry would benefit from it. We also hope that this report would follow suit our previous reports which are known for their good scientific content that made them one of the main and reliable petroleum and energy references in the Arab countries.

Secretary General

Abbas Ali Al Naqi

ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES (OAPEC)

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PART ONE

INTERNATIONAL DEVELOPMENTS IN OIL AND ENERGY

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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 2015, the international oil market has witnessed negative developments driven by sudden changes in supply and demand levels, which led to a sharp decline in oil prices since the second half of 2014, in addition to fluctuations in the global oil markets, which in turn influenced the oil trade movement and the global economic performance rates.

Global oil prices have witnessed severe decline hitting an annual average of $49.5/b for OPEC crude basket, the lowest since 2005, as a result of various and intertwined factors which influenced market fundamentals, represented in demand and supply, directly.

Global oil demand registered a growth of 1.5 million b/d compared with 1.1 million b/d in 2014. It reached 92.9 million b/d in 2015 in the light of abundant supplies which reached 94.9 million b/d. Non-OPEC supplies continued to rise at a rate of 1.2 million b/d in 2015 reaching 56.9 million b/d. Meanwhile, OPEC supplies have risen at a rate of 0.6 million b/d reaching 38 million b/d in 2015. Global oil prices were also influenced by various other factors, most important of which is the slowdown of the Chinese economy growth, which affected future oil demand prospects.

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

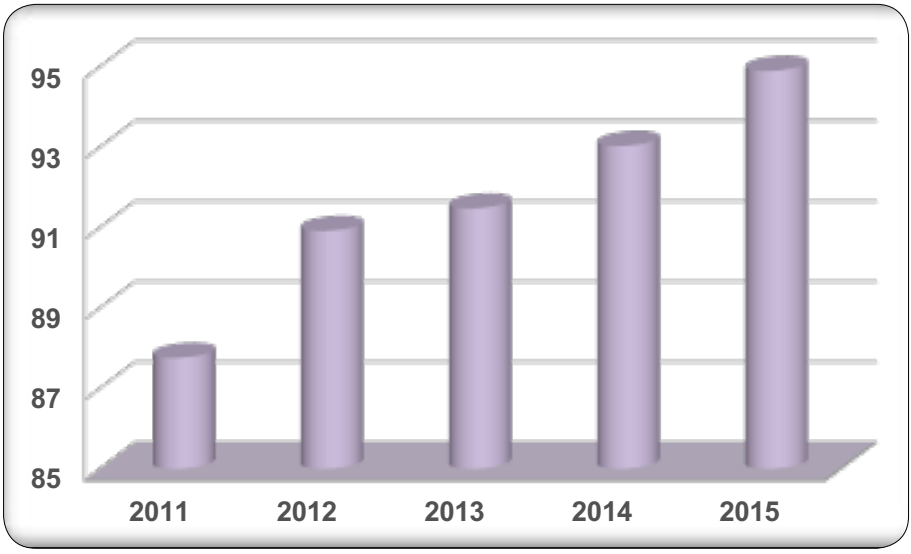
Major Developments in the Global Oil Market in 2015 and Factors Influencing them:

In order to shed more light on the main developments witnessed in the global oil market in 2015, the following paragraphs review in detail some aspects related to the oil market, in particular oil supplies, the world oil demand, fluctuations in international oil inventories, price trends, and their impact on the value of the OAPEC members' oil exports.

1- Supplies

The world total oil supply (crude oil and NGLs) has witnessed a noticeable increase of about 1.8 million b/d (about 2%) in 2015 compared with the previous year, reaching 94.9 million b/d as shown in Table (1-1) and Figure (1-1).

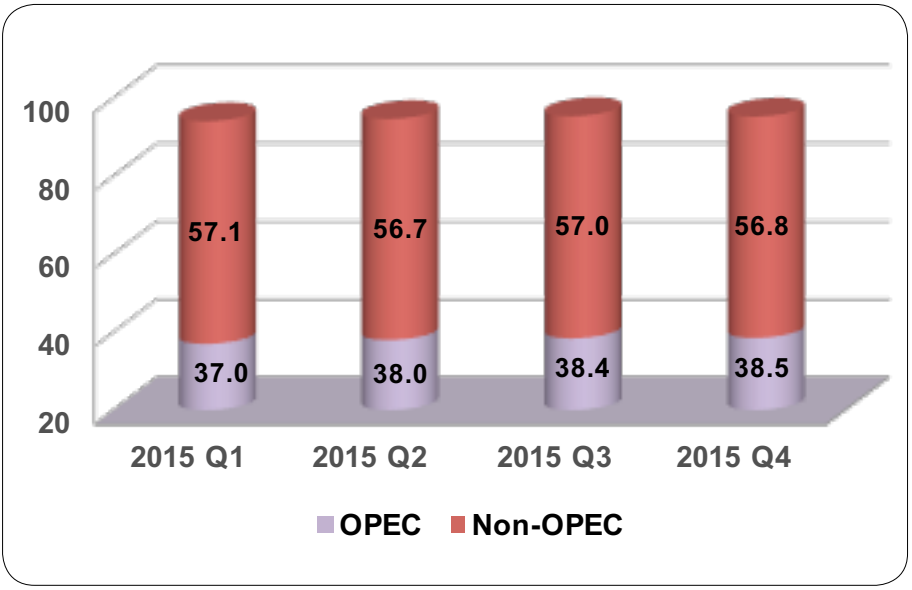
Figure (1-1)
World Supply of Oil and NGLs, 2011-2015
(Million b/d)



Concerning the supply development on quarterly basis, the second quarter of 2015, has witnessed an increase of about 600 thousand b/d compared to the first quarter of the year, reaching about 94.7 million b/d and followed by an increase of 700 thousand b/d in the third quarter compared to the second quarter, reaching about 95.4 million

b/d. This was followed by a drop of about 100 thousand b/d reaching 95.3 million b/d in the fourth quarter, as shown in Figure (1-2).

Figure (1-2)
Quarterly World Supply of Oil and NGLs, 2015
(Million b/d)



1-1 OPEC Supplies[1]

The rate of the OPEC countries oil supplies (crude oil and NGLs) has risen by about 600 thousand b/d in 2015, or 1.6% compared to 2014, reaching 38 million b/d. OPEC share of the total global oil supplies has slightly dropped from 40.2% in 2014 to about 40% in 2015 as shown in Table (1-1).

The OPEC oil and NGL supplies have increased in the second half of the year by almost one million b/d compared with the first quarter reaching 38 million b/d. It increased in the third quarter

[1] December 2015 witnessed Indonesia's return to OPEC's membership. OPEC supplies have been updated to include Indonesian supplies of 0.9 million b/d in 2014 and 2015.

by 400 thousand b/d compared with the second quarter. This was followed by another increase of 100 thousand b/d in the fourth quarter reaching 38.5 million b/d.

At the same time when OPEC crude oil supplies have increased from about 31 million b/d in the first quarter of 2015 to reach about 32.2 million b/d in its fourth quarter, OPEC's NGLs and unconventional oil supplies have risen from 6 million b/d in the first quarter to 6.3 million b/d in the fourth quarter.

In light of the abundant global oil supplies, OPEC continued to closely monitor the global oil market to meet the market needs, in an attempt to keep the oil market balance.

In this regard, the OPEC held two ordinary ministerial meetings in 2015 and took measures that would help further balance the market. Following are some of the details discussed:

- The first ordinary meeting was held on 5 June 2015 at OPEC headquarters in Vienna. The meeting discussed the recent developments in the oil market and the global economic growth, especially supply and demand projections in the second half of 2015 and the outlook for 2016. It was noted that the sharp drop of prices since the end of 2014 and the beginning of 2015 due to oversupply and speculations has lost some momentum with a slight increase in prices during the recent months. The meeting also noted that global oil stocks and oversupply in the market indicate to relaxed supply levels. Therefore, OPEC member countries decided to maintain current output levels of 30 million b/d.

- The second ordinary meeting was held on 4 December 2015 at OPEC headquarters in Vienna. It witnessed the return of Indonesia to OPEC membership. The meeting discussed the international oil market developments in 2015 and projections for 2016. It was noted that the global economic growth reached 3.1% in 2015, and is expected to rise to 3.4% in 2016. It has also been noted that non-OPEC oil supplies might drop in 2016, while the world demand might increase again to reach 1.3 million b/d. Therefore, the conference decided to keep monitoring the oil market developments until the next meeting in June 2016.

1-2 Non-OPEC Supplies

The total oil supply of non-OPEC oil producing countries in 2015 has reached about 56.9 million b/d with an increase of 1.2m b/d, or 2.2% compared with 2014. As shown in table (1-1).

Moreover, in spite of the severe conditions experienced by the oil markets due to the declining prices, which constitutes the biggest challenge for non-OPEC producers whose production is more costly, OPEC members have managed to achieve a net increase in production significantly countering predictions that their oil production has reached its peak.

The source of the greatest portion of this increase in supply has been North America in general, and particularly the US shale oil and unconventional NGL production. The US production went up by 910 thousand b/d to reach 13.9 million b/d during 2015 compared with 13 million b/d in 2014. This increase represents 75.8% of the total increase in non-OPEC oil supplies in 2015 which reached about 1.2 million b/d.

1.2.1 USA Shale Oil Production

USA shale oil production level has increased in 2015 by about 610 thousand b/d representing 15.6% compared with the previous year levels to reach 4.523 million b/d.

As for monthly rates, they were at 4.415 million b/d in January 2015. Then they started increasing until they reached their peak of 4.643 million b/d in March, then they fluctuated to reach 4.625 million b/d in July. This was followed by gradual decline in the remaining months of the year to reach 4.272 million b/d in December, the lowest since October 2014, as shown in Figure (1-3).

Figure (1-3)

Evolution of USA Shale Oil Production (2012-2015)
(Million b/d)

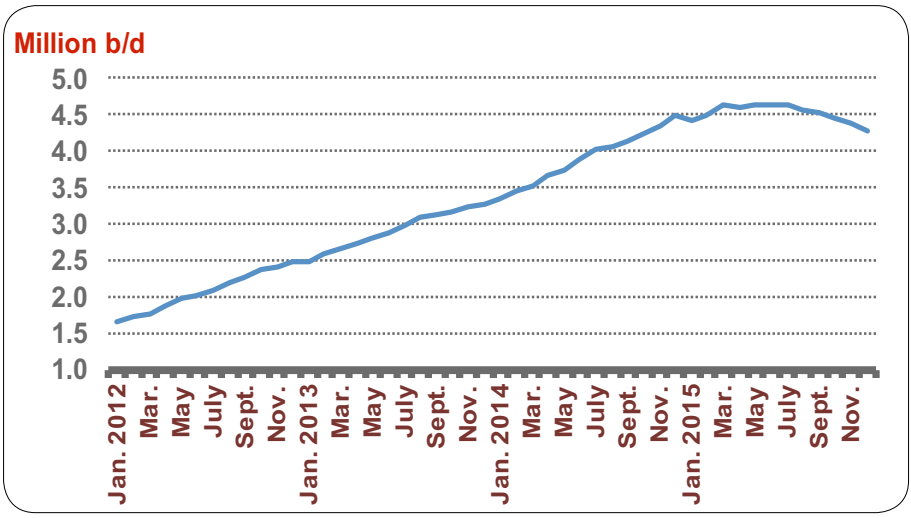
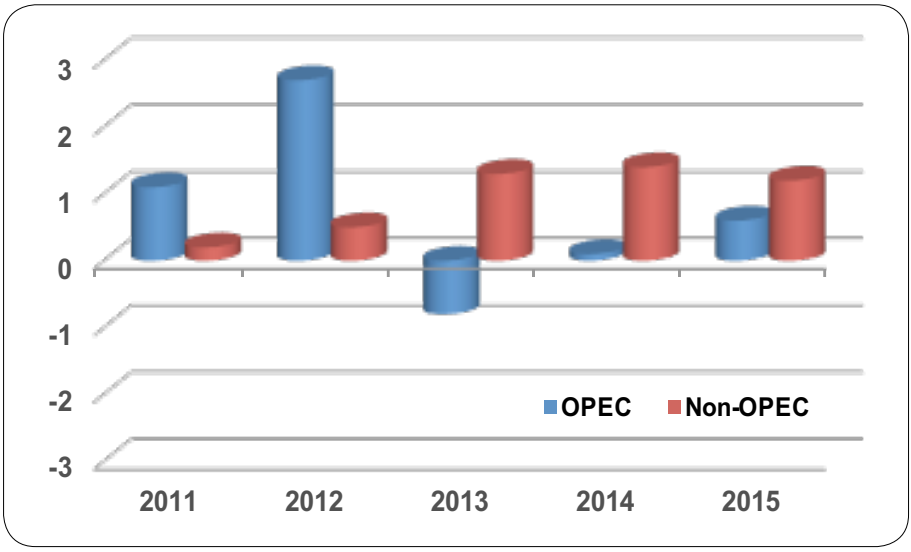


Figure (1-4)

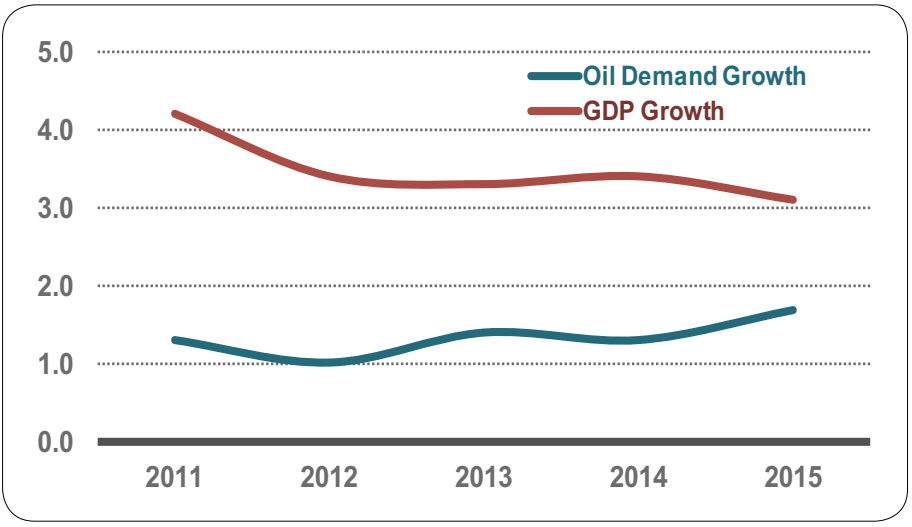
Annual Change in World Supplies of Crude Oil and NGLs (2011-2015)
(Million b/d)



2. World Oil Demand

The global oil demand has increased in 2015 by 1.5 million b/d at growth rates of about 1.7% exceeding the previous year's 1.3% influenced by the OECD oil demand growth that recorded 0.9% increase in 2015 compared with a 0.6% deflation in 2014, due to the improvement of the economic growth in the OECD countries, which contributed to restraining the slowdown of global economic growth resulting from declining growth rates of developing economies. Figure (1-5) and table (1-2) show the annual growth rates of world oil demand compared with world economic growth rates between 2011 and 2015.

Figure (1-5)
World Economic and Oil Demand Growth, 2011-2015
(%)



The year 2015 has witnessed a slowdown in global economic growth rates, as they dropped from 3.4% in 2014 to 3.1% in 2015 owing mainly to the growth slowdown in developing and emerging economies.

Concerning the different international groupings, the economic growth rates of OECD countries, which account for 49.7% of the

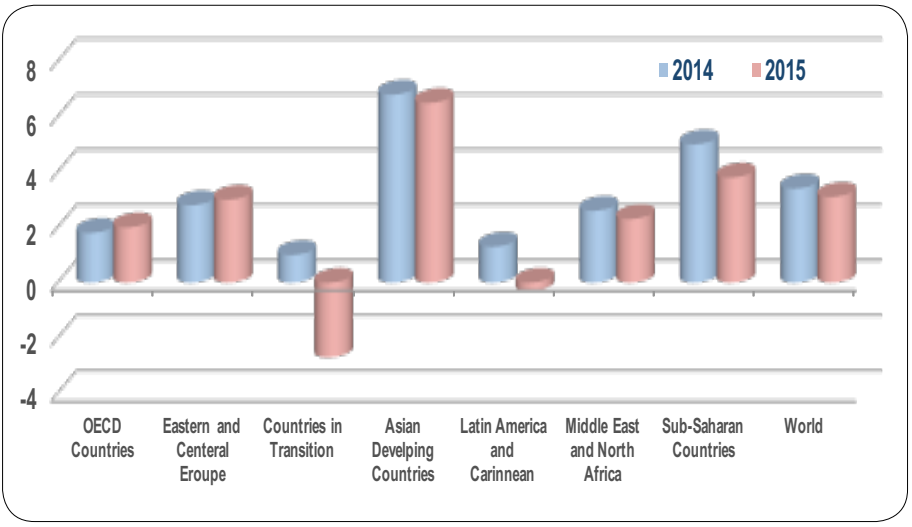
global oil consumption, have increased from 1.8% in 2014 to 2% in 2015.

Further, amongst the OECD countries, the US economic growth rate has increased from 2.4% in 2014 to 2.6% in 2015. The Japanese economy has transformed from 0.1% deflation in 2014 to 0.6% growth in 2015. On the other side the Euro zone has witnessed a considerable improvement in the economic growth rates from 0.9% in 2014 to 1.5% in 2015, due to the declining prices of basic goods led by oil.

On the contrary, the rest of World economic growth rates have fallen to reach 4% compared with the 2014 growth rate of 4.6%. As the Commonwealth of Independent States (CIS) growth rates have changed from 1% growth in 2014 to 2.7% deflation in 2015 due to Russian economy deflation of 3.8% in 2015 against a growth of 0.6% in 2014 as a result of the drop in the value of Russian oil exports in 2015. With respect to the Asian developing countries, their growth rates have witnessed a slight drop throughout 2015 to reach 6.5% compared to 6.8% in the previous year including China which has witnessed a noticeable slowdown in its economic growth to reach 6.8% in 2015 compared with 7.3% in 2014.

Besides, the economic growth rates of Latin America and the Caribbean have changed from 1.3% growth in 2014 to 0.3% deflation in 2015. However, the economic growth rates in the Middle East and North Africa region (MENA) have dropped from 2.6% in 2014 to 2.3% in 2015. Also, Sub-Saharan African countries economic growth rates have dropped from 5% in 2014 to 3.8% in 2015 as shown in figure (1-6) and table (1-3).

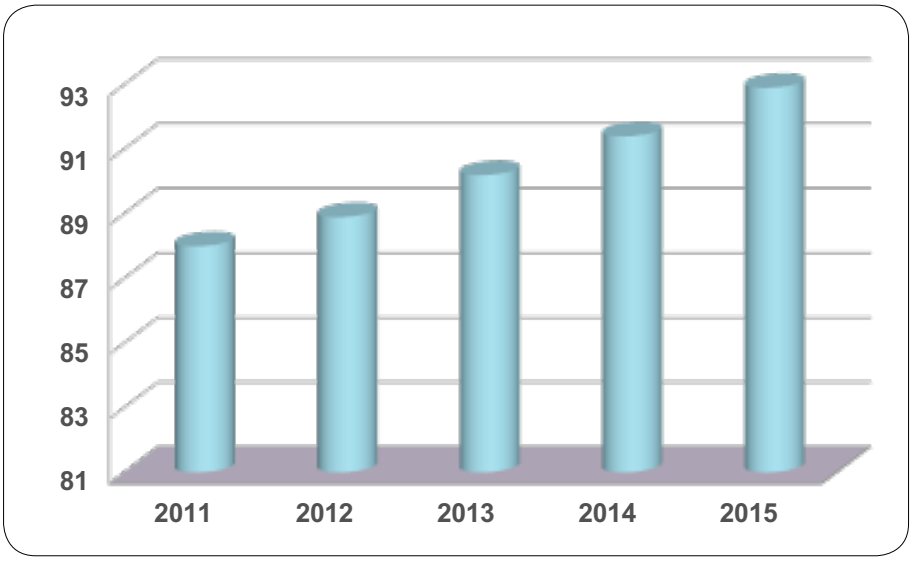
Figure (1-6)
World Economic Growth in 2014 and 2015
(%)



By tracking the global economic growth rates in 2015, the influence of the drop in basic goods prices, oil on top, can be noted on the international groups' economic growth trends. Declining prices contributed to the increase of economic growth rates in OECD countries- the main consumers- according to the degree of their independence on imported oil, on top of which Japan, the Euro zone, and to a lesser degree the USA. This did not reflect clearly on the Chinese economy because it is going through structural transformations. The Chinese government has adopted a new approach in recent years towards boosting China's transformation into a locally-supported economy instead of relying on the export sector that has been achieving the targeted sustainable growth in the second largest economy in the world. However, declining oil prices have reflected on declining growth rates in other main oil exporting countries, on top of which the MENA region, Latin America, and Russia.

Global economic growth rates have affected the global oil demand that went up by 1.5 million b/d throughout 2015, that is 1.7% compared with last year's rate, as global demand has reached 92.9 million b/d in 2015, as shown in figure (1-7) and table (1-4).

Figure (1-7)
World Oil Demand (2011-2015)
(million b/d)



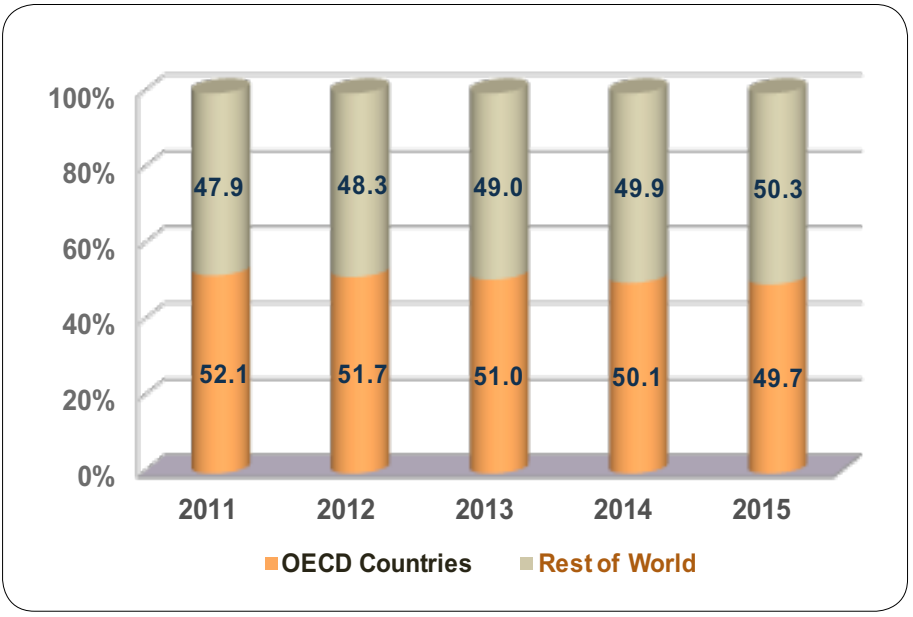
According to major international groupings, OECD countries' demand has risen during 2015 by about 400 thousand b/d to reach 46.2 million b/d, while they went up in other countries in the world by 1.1 million b/d compared with 2014 rates to reach 46.7 million b/d.

The change in the demand rate of every group has led to a change in their share of the global demand in 2015. The share of the OECD countries has dropped from 50.1% in 2014 to 49.7% in 2015, while the share of other countries in the world has risen from 49.9% to 50.3% as shown in Figure (1-8) and Table (1-5):

Figure (1-8)

Distribution of World Oil Demand by International Groupings (2011-2015)

(%)

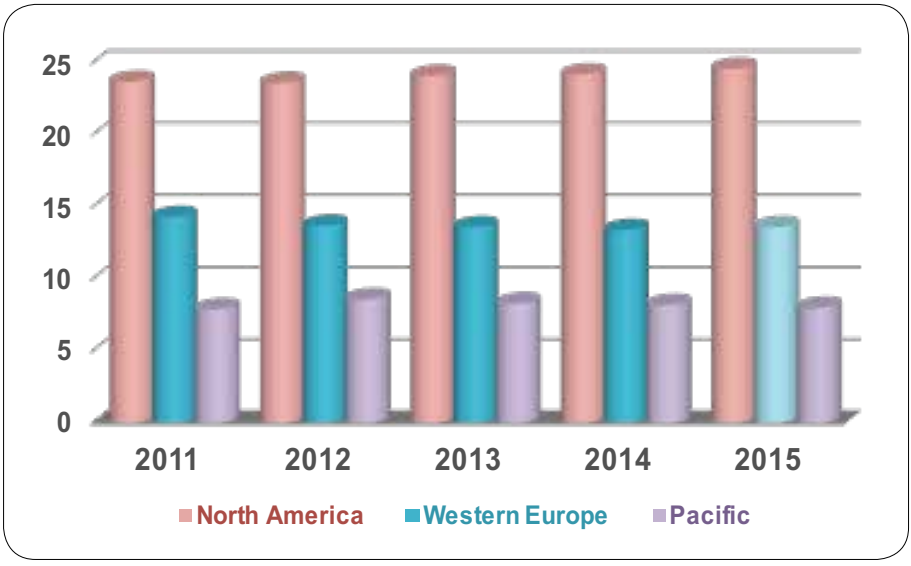


Following, the developments in world oil demand level of each international group .

2-1 OECD Countries

The OECD countries demand for oil increased by 400 thousand b/d or 0.9% in 2015 compared with the previous year to reach 46.2 million b/d. within the said group, North America's demand for oil has risen by 400 thousand b/d to 24.6 million b/d throughout the year. Western European countries' demand increased by 200 thousand b/d to reach 13.6 million b/d throughout the year. Whereas demand of the Pacific industrial countries fell by 200 thousand b/d to reach 8 million b/d, as shown in Figure (1-9) and Table (1-6):

Figure (1-9)
Total OECD Oil Demand, 2011-2015
(million b/d)



The developments in the US economy are considered of the most important factors influencing the global oil consumption. Oil consumption in the USA, which represents nearly 21.3% of the total world consumption, has followed an upward trend since the second half of 2014, due to increasing consumption of transportation fuel, especially gasoline in light of the sharp decline of global oil prices, the increasing value of the US dollar exchange rate against other main currencies, rapid US economic growth, improved labour market, and high consumer confidence.

Concerning European industrial countries, in spite of the low oil consumption observed in the past years a result of the continuation of the sovereign debt crisis in the Euro zone that started at the end of 2009 and aggravated in early 2011 and greatly affected the industrial European economies, demand for oil has risen in 2015, especially in the industrial and transportation sectors. This is due to the sharp drop in global oil prices since the second half of 2014.

As for the European industrial countries' quarterly oil demand in 2015, OPEC estimations indicate that following a drop of 100 thousand b/d in the first quarter compared with the fourth quarter of the previous year to reach 46.5 million b/d, the second quarter witnessed a drop of 100 thousand b/d compared with the first quarter. The European demand in the third quarter maintained the same level of the second quarter. However, demand went up again by about 200 thousand b/d reaching 46.6 million b/d in the fourth quarter of 2015.

2-2 Developing Countries

The Developing countries demand for oil (including China) increased by 1.1 million b/d during 2015 compared with the previous year, reaching an unprecedented level of 41.5 million b/d with a growth rate of 2.7% compared with 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 about 4.3 million b/d in 2015 compared with its level in 2011.

In the MENA region, oil demand has risen by 300 thousand b/d reaching 12.2 million b/d. The demand of Arab countries has claimed the full increase in the region's demand and amounted to 7 million b/d (a share of 27.3% of the total increase in developing countries oil demand). This increase is largely attributed to the increase in OAPEC member countries consumption to 5.9million b/d in 2015, representing an increase of 3.5% compared with the previous year. Diesel was the highest consumed product in these countries due to its increasing use in transportation and industrial sectors. Gasoline consumption has also noticeably increased. Demand in other Arab countries has risen by 100 thousand b/d to reach 1.1 million b/d throughout the year. As for other MENA region countries, the demand remained unchanged since the previous year level of 5.2 million b/d.

The demand of the Asian developing countries has risen by 700 thousand b/d to reach 22.6 million b/d in 2015. In spite of the slowdown of the Chinese economic growth, China accounted for 43% of the increase in Asian countries demand and 27.3% of the total demand of all developing countries, with an increase of 300 thousand b/d to reach 10.8 million b/d in 2015. China is the main drive for the Asian economic growth and recovery. Chinese demand accounted for about 47.8% of the total Asian demand. Rising demand for basic petrochemicals in addition to the slight increase in transportation fuel demands have contributed to supporting the increasing demand for crude oil in China.

It is worth mentioning, following its drop of 500 thousand b/d to about 10.4 million b/d in the first quarter of 2015 compared with the fourth quarter of the previous year, Chinese demand for oil has increased in the second quarter by about 700 thousand b/d but then fell in the third quarter by about 400 thousand b/d followed by an increase of 400 thousand b/d in the fourth quarter to reach 11.1 million b/d. China has exploited the declining oil prices to boost its strategic reserves.

As for the Indian economy, the other engine for Asian economic growth, it has experienced a rise in demand by about 100 thousand b/d to reach 3.9 million b/d.

Moreover, the demand in Latin American has increased by 100 thousand b/d to reach 6.7 million b/d. The increase is attributed to Brazil's rising oil demand by 100 thousand b/d, as shown in Table (1-7).

2-3 Countries in Transition

The Oil demand in the countries in transition has maintained the previous year's levels of 5.2 million b/d. Former Soviet Union states demand has increased by about 100 thousand b/d to reach 4.6 million b/d. Demand from other countries in transition has fallen by about 100 thousand b/d to reach 600 thousand b/d, as shown in Table (1-7).

3 - Price Trends

3-1 Crude oil prices

In 2015, global oil prices dropped noticeably hitting their lowest levels since 2005. The monthly OPEC basket rates varied widely between $33.6 and $62.2 per barrel throughout the year. The average annual OPEC basket rate reached $49.5, per barrel, less by about $46.7 per barrel (equivalent to a drop of 48.5% compared to 2014).

The first half of the 2015 year has witnessed a relative price improvement as the OPEC basket monthly price rate reached over $60 per barrel, whereas the second half of the year witnessed the return to prices lower than $40 per barrel.

As for the quarterly oil price rates, the OPEC basket price rate reached $50.3 per barrel in the first quarter of the year 2015 declining by $23.1 per barrel (about 31.5%) compared to the fourth quarter of the previous year.

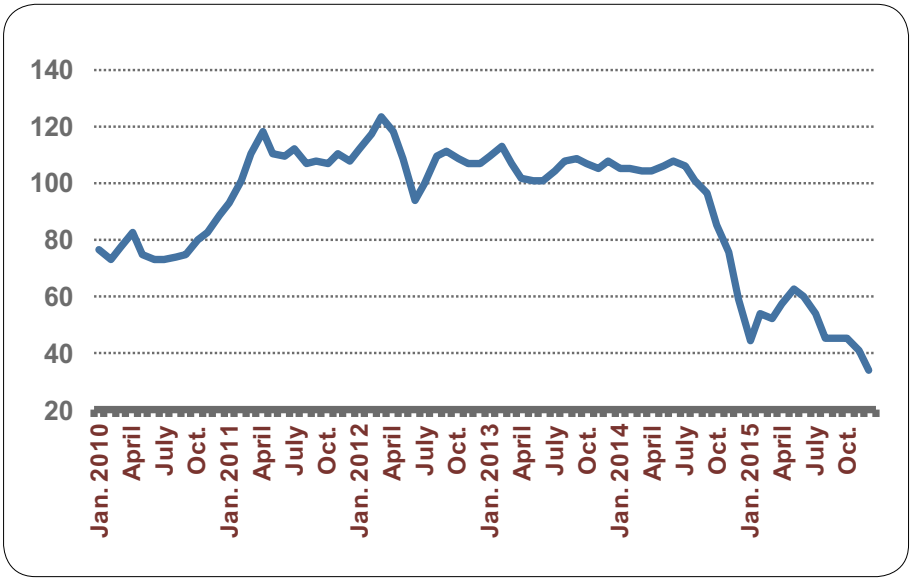
It then went up to $59.9 per barrel in the second quarter. The price then went down again in the third quarter by $11.7 per barrel, representing 19.5% compared with the second quarter of the year reaching $48.2 per barrel. It then continued to drop to lower than $40 per barrel reaching $39.7 per barrel in the fourth quarter, representing a drop of 17.6% compared with the third quarter; the lowest level since the third quarter of 2004.

The monthly price rate of the OPEC basket started 2015 at $44.4 per barrel in January. It then started to improve gradually until it reached its $62.2 per barrel peak in May. Following that, prices started to decline gradually throughout the remaining months of the year until they reached $33.6 per barrel in December; the lowest level since April 2004.

As a result, 2015 witnessed a clear gap between the highest and lowest OPEC basket prices throughout the year reaching about $28.6 per barrel, although in a lesser degree compared with $48.4 per barrel (as a difference between the highest and lowest monthly averages in

2014). Figure (1-10) and Table (1-8) show the monthly rate of OPEC basket price during (2010-2015).

Figure (1-10)
Monthly Rate of OPEC Basket Price (2010-2015)
($/ barrel)



The Global oil prices are determined usually as a result of the impact of various and intertwined factors with different trends. Among the main factors that led to the fall of oil prices throughout the year:

- Abundant global supplies are one of the most significant reasons that led to the decline of oil prices; especially the success of exploiting the unconventional oil and natural gas in the US, which resulted in a large increase in its total oil production, in addition to the increase in net oil supplies from the non-OPEC countries reaching 2.6 million barrels per day in 2014 and 2015.
- Emergence of slowdown signs in the global oil demand growth rates in general, and China in particular, as the Chinese

government has adopted a new approach in recent years to boost China's transition to be an economy that is supported by local consumption instead of exporting. This has overshadowed future oil demand projections.

- Major oil exporting countries' orientation towards maintaining their production rates to guarantee their market share instead of reducing prices through cutting their output. This has created a gap between supply and demand.
- The high US dollar exchange rates that kept rising gradually against major currencies since the beginning of 2014. This has reduced oil prices due to concerns over the possibility of increasing inflation rates.
- Brokerages have had a big role, especially in the second half of 2014, in light of the prevailing geopolitical factors.

The year 2015 had also witnessed developments in price differences pattern. The pattern was characterized by relatively limited expanding 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 oil (highest quality of light oils) and Dubai crude oil (heavy oil) has reached $1.4 crude per barrel in 2015 compared to $2.4 per barrel last year. This applies to OPEC basket price that was lower than Brent by $2.9 per barrel during the year compared to the previous year.

These price difference developments could be attributed greatly to the sharp drop of crude oil prices in 2015. Prices have lost half of their nominal value compared with the previous year. Major crude oil prices around the world have declined greatly in 2015; Dubai oil has declined by about $45.6 per barrel, Brent crude oil by $46.6 per barrel, and West Texas crude oil by $44.5 per barrel.

It is worth mentioning that West Texas crude oil, one of the main global indices of light nature and low sulfur content, has been negatively affected by logistic limitations, since 2007, especially

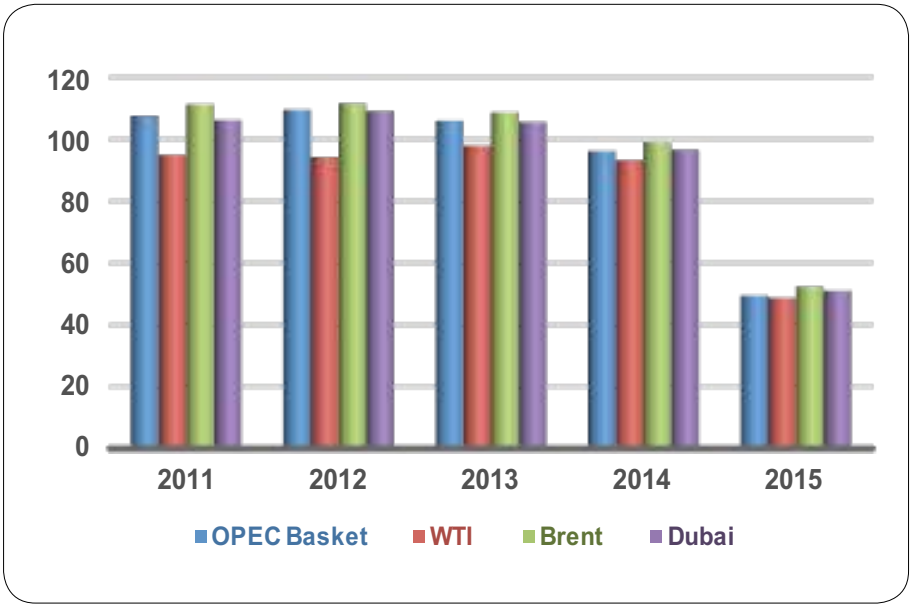
that it is closed and isolated from other global markets. Its prices have moved in a way that was not related to the global market fundamentals. Traditionally, the price differences between West Texas and Brent crude oil, similar in quality, favoured West Texas. However, in 2015 these differences had reached $3.7 per barrel compared to $5.8 per barrel in the previous year in favuor of Brent. Moreover, the high quality West Texas oil prices had been lower than other less quality oils by almost $2.3 per barrel compared to Dubai crude oil and $0.8 per barrel compared to the average OPEC basket price during the year.

Price differences can be figured out from table (1-9) and figure (1-11) showing the annual OPEC basket price rate and the main crude oil indices in the world (US light crude, Brent, and Dubai) from 2011 till 2015.

Figure (1-11)

Annual Average Prices of OPEC Basket, US Crude, Brent, and Dubai (2011 – 2015)

($/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.

The Algerian crude has fell by $46.8 per barrel to reach $52.8 per barrel during the year (a drop of 47% compared to last year). The Kuwaiti export crude has fallen by $47 per barrel reaching $48.2 per barrel (a drop of 49.4% compared to 2014). This has led to widening the difference between the Algerian and Kuwaiti crudes to up to $4.6 per barrel in 2015 compared to $4.4 per barrel in the previous year.

With regards to other Arab crudes, Arab light crude of Saudi Arabia has fallen by (48.6%) to reach $49.9 per barrel, UAE Murban crude by (45.7%) reaching $53.9 per barrel, Libyan Sidra (47.8%), reaching $51.4 per barrel, Qatar marine crude (47.4%) reaching $50.7 per barrel and Iraqi Basra by (49.3%) reaching $47.9 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 $46.7 per barrel, has been more than the fall in its real price calculated using the year 2000 as a base year after amending it according to the index number that represents the Gross Domestic Product deflator in industrial countries, as it fell by $37.8 per barrel (more than 49%) reaching an average of about $39.3 per barrel in 2015 as shown in table (1-10).

3-2 Spot Prices for Oil Products

In 2015, the decline of crude oil pieces has reflected on 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.

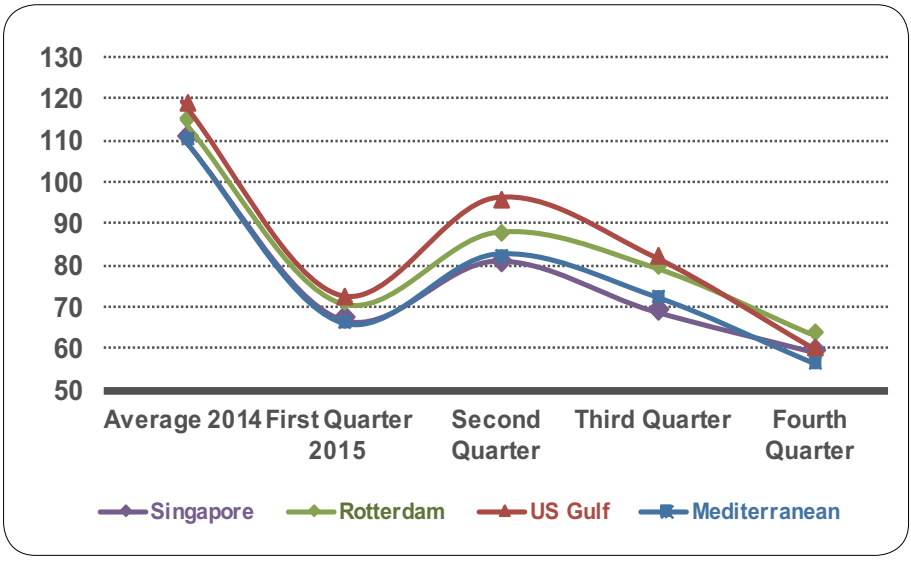
3-2-1 Prices of premium gasoline

In 2015, the price rate of gasoline in the US Gulf has reached $77.7 per barrel; that is a decline of $41.2 per barrel, representing a drop of 34.7% compared to the 2014 price rates. In the Mediterranean market,

the price rate has reached $69.4 per barrel during the year with a drop of $41.2 per barrel, representing a drop of 37.3% compared to the previous year. The price rate in Rotterdam market has reached $75.5 per barrel during the year with a drop of $39.6 per barrel (34.4% when compared to 2014). As for the Singapore market, the price rate has reached $69.2 per barrel in 2015, with a drop of $41.7 per barrel (a drop of 37.6% when compared to 2014 prices).

The US market has achieved the highest prices among the four markets in 2015, followed by Rotterdam, then the Mediterranean, and finally Singapore that recorded the lowest prices as shown in table (1-11) and figure (1-12).

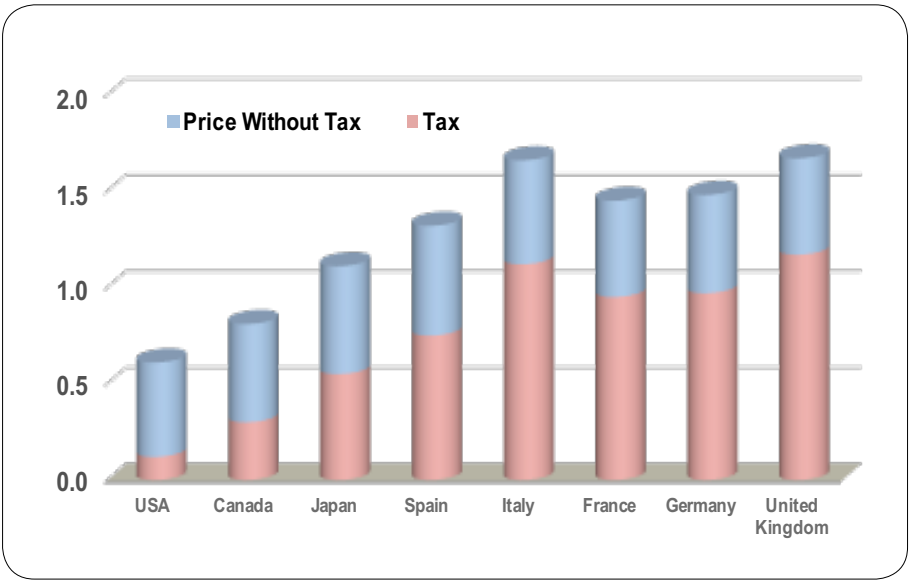
Figure (1-12)
Premium Gasoline Prices, 2014-2015
($/barrel)



When comparing the final price in some major industrial countries, it can be noted that it is lowest in the US market due to the low taxation in that market. Such taxes represented about 19.7% of the gasoline net price in October 2015 compared to 36.7% in Canada, 49.6% in Japan, 56.9% in Spain, and more than 65% in some other

European countries (France 65.5%, Germany 65.7%, Italy 67.5%, the UK 69.9%) during the same period as shown in table (1-12) and figure (1-13).

Figure (1-13)
Gasoline Prices in some OECD Countries, October 2015 ($/Liter)



3-2-2 Gasoil/ diesel prices

The annual gasoil price average has fallen in general in 2015 in all major markets compared to the previous year. The absolute price levels of the Gasoil price during the year were lower than gasoline and higher than fuel oil in all major markets around the world in general. The Mediterranean market has claimed the highest gasoil prices reaching $67.5 per barrel in 2015, with a drop of 40.4% compared to 2014 levels, followed by Singapore market at $66.2 per barrel, with a drop of 41.8%, Rotterdam with a price rate of $66 per barrel, representing a drop of 41.5%, and finally the US Gulf market with the lowest price rate of $63.8 per barrel, with a drop of 42.7% compared to the previous year.

3-2-3 Fuel Oil Prices

The Fuel oil prices have dropped in all markets in 2015. In Singapore, the fuel oil price rate has reached $45.9 per barrel with a drop of 48% compared to 2014. In the US, the price rate has reached $43.3 per barrel with a drop of 52% compared to the previous year. In Rotterdam, it has reached $40.2 per barrel with a drop of 53.8% compared to 2014. In the Mediterranean market, the price has reached $42.1 per barrel with a drop of 52.2% compared to the year before.

3-3 Oil Freight Rates

Crude oil freight rates had risen in different degrees to various destinations in 2015 compared with their 2014 levels in spite of the continued 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 mainly due to the fact that the oil price decline has provided an unexpected support to the tankers market as it encouraged a trend of oil storing on tankers, which in turn helped reducing the prices of ship fuel. Navigational data shows that many oil traders have chartered tankers to store oil as a result of oversupply and low prices. This is in waiting for prices to recover, repeating the scenario of a profitable trading bet in 2009 when global oil prices collapsed. Data also shows that demand for tankers has increased clearly especially from the east. Inactive tankers have dropped sharply and the overcapacity of shipping that has been ongoing for years has come to an end.

In 2015, the freight price rate for oil shipments from Arabian Gulf ports to the East using big size tankers -VLCCs (230 -280 thousand deadweight tons (dwt)) was about 65 points on the World Scale (WS)2. This was 16 points, or 32.7%, higher than in 2014.

As for the freight price rates for shipments from Arabian Gulf ports to the West, with a capacity of 270 -285 thousand dwt, averaged 38

points on the WS in 2015 which was 8 points, or about 26.7% higher than in 2014, as shown in Table (1-13).

2 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, and contains a list of prices in the form of dollars per ton, representing "World Scale 100" for all the major routes in the world.

In the Mediterranean region there was a slight increase in freight rates for small and medium-sized tankers (80 -85 thousand dwt). The average freight rate in 2015 was 108 WS points, which was 3 points, or about 2.9%, higher than in 2014.

As for the East direction, oil freight rates from Arabian gulf ports to the East, have fluctuated in 2015. They started the year stable at same 69 WS points levels recorded by the end of 2014. Then they started falling to reach 53 WS points in March then increased to 73 WS points in July. Freight prices then hit the lowest level of 39 WS points in August. This was followed by an increase in freight price in the remainder of the year reaching 88 WS points by the end of the year.

Likewise, crude oil freight rates from the Arabian Gulf ports to the West destination have fluctuated in 2015. They varied throughout the year between their lowest levels of 26 WS points in August, and their highest level at the end of the year of 53 WS points.

As for the Mediterranean destination, the freight rates started the year 2015 with an increase to reach 128 WS points in February and then they began to fluctuate up and down till reaching their highest level of 134 WS points in the end of the first half of the year. But then they declined to reach their lowest level of 73 WS points in September before they picked up again and increased to 120 WS points by the end of the year.

4. Global Oil Inventories

The year 2015 witnessed an increase in total world oil inventories (commercial and strategic) by the end of the fourth quarter of 2015, reaching 8842 million barrels, representing an increase of 750 million barrels, or 9.3% compared with the similar quarter of previous year. Moreover, the crude oil stocks at sea totaled 1164 million barrels by the end of 2015 with an increase of 120 million barrel compared with 2014 as shown in table (1-14).

4-1 OECD Commercial Inventories

After the commercial inventories in OECD countries reached 2768 million barrels in the first quarter of 2015, it increased by 137 million barrels by the end of the second quarter of the year to reach 2905 million barrels. It then increased even further in the third quarter by 83 million barrels. This was followed by another increase of 22 million barrels amounting to 3010 million barrels in the fourth quarter.

It is worth noting that OECD commercial inventories level of forward consumption has reached a level of about 64.2 days, which is higher than the end of previous year level of about 58.2 days.

4-2 US Strategic Petroleum Reserve

The US Strategic Petroleum Reserve has maintained a 691 million barrels level since the second quarter of 2014 until the first quarter of 2015. In the second quarter it went up to 694 million barrels. It continued rising in the third quarter by about 1 million barrels to reach 695 million barrels and till the fourth quarter of 2015.

Since 2004, the US Administration has adopted a more flexible attitude toward releasing quantities of the strategic reserve to compensate for any shortage of supply. This gave a commercial aspect to the strategic reserve than the previous policies, which regarded the strategic reserve as a last resort to be used only at times of major crises.

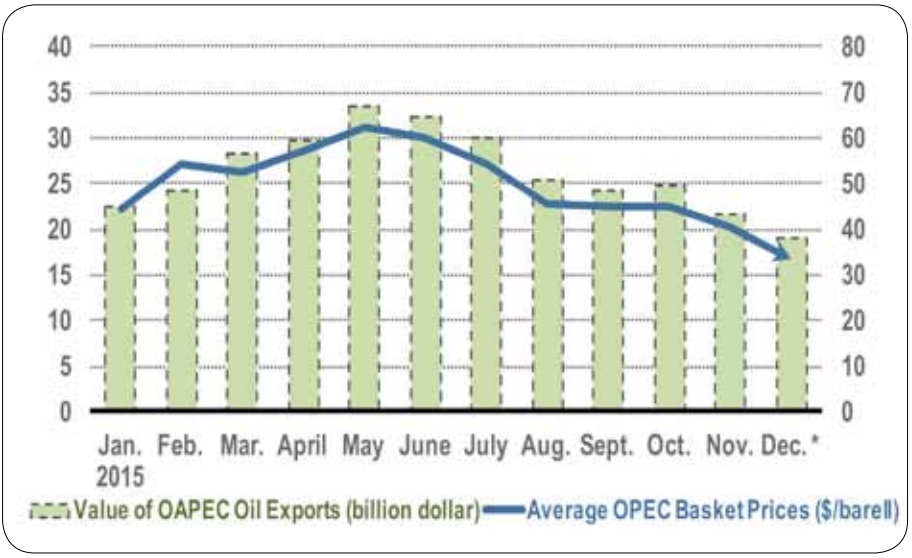
2- Oil Exports Value of OAPEC Member Countries

The oil price rates in 2015 were reflected on the value of oil exports that are the main engine of social and economic development in the oil producing Arab countries, the mainstay of their central bank reserves of foreign currency, and the main source of their budget surpluses.

The monthly data on the movement of oil prices and the estimated monthly value of OAPEC member countries' oil exports can give a clearer picture of the negative effects of the price movement during the year. In January 2015, when OPEC crude basket reached $44.4 per barrel, member countries' oil exports were estimated at about $22.5 billion. In May, 2015, oil exports value reached its peak during the year at $33.5 billion due to price improvement as OPEC crude basket price average reached its highest level at $62.2 per barrel. In the following months, oil exports value started to decline to reach its lowest level in December 2015 at $19 billion when prices hit their lowest levels too reaching $33.6 per barrel as shown in Figure (1-14).

Figure 1-14

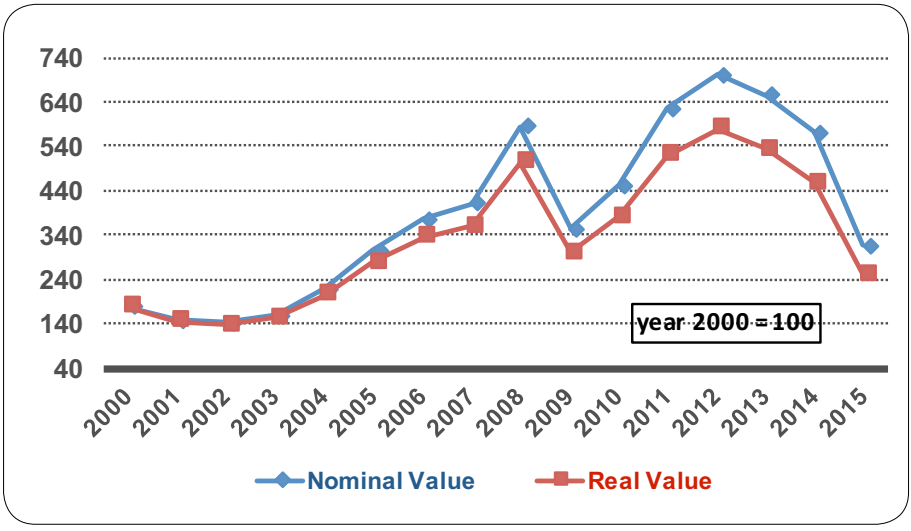
Comparison of Oil Price Levels and Value of OAPEC Oil Exports, January-December 2015



A year-on-year comparison shows that the value of the OAPEC members' oil exports went down from $570.8 billion in 2014 to $315.5 billion in 2015 due to a drop in prices during the year. This represents a decline of $255.3 billion or 44.7%. An analysis of individual member countries shows that revenues values have dropped during the year. The decline varied from one country to another; Libya achieved the lowest level of revenues due to the huge decline in its production of about 68% compared with the previous year as a result of its security situation. The State of Qatar came next with a decline of 54.8%, the Kingdom of Bahrain 49.1%, the People's Democratic Republic of Algeria 48.8%, the Arab Republic of Egypt 48.5%, the Kingdom of Saudi Arabia 46.9%, the State of Kuwait 45.5%, the Republic of Iraq 40.1%, and the United Arab Emirates 34.1%, as shown in Table (1-15).

The value of crude oil exports for member countries measured by real prices for the year 2000, and after being adjusted according to the GDP deflator in OECD countries, has decreased from $457.7 billion in 2014 to $250.4 billion in 2015, representing a decline of 45.3%, as shown in Figure (1-15) and Table (1-16).

Figure (1-15)
Nominal and Real Values of OAPEC Crude Oil Exports
($/billion by real prices of the year 2000)



3- DEVELOPMENTS IN OIL AND ENERGY CONSUMPTION IN THE ARAB COUNTRIES

This section highlights energy consumption developments in the Arab and OAPEC member countries during the period 2011-2015. It reviews the energy consumption of the Arab countries in general and the OAPEC member countries in particular, depending on the data available for each group.

1- Arab Countries

1-1 Total and Per Capita Energy Consumption

There are three basic variables that affect energy consumption in the Arab countries: GDP, population, and energy prices. The following sections highlight the development of the three variables in the Arab countries.

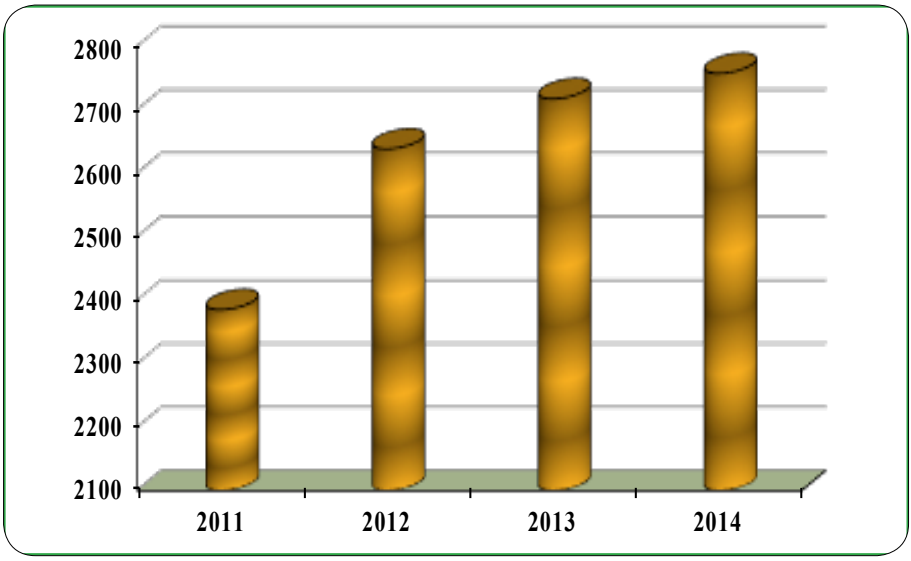
1- GDP: The data published in the Joint Arab Economic Report for 2015 indicated the continuation of the weak economic performance in the Arab countries in 2014. This is due to two main reasons: first, the negative impact of the extraordinary circumstances in some Arab countries- Syria, Libya, Iraq, and Yemen. Second, declining crude oil prices in the world markets and their direct impact on the size of oil revenues, and consequently on the general budget.

The GDP at current prices in Arab countries has risen in 2014 by 1.5% compared to 3% in 2013. The GDP therefore has risen from $2717 billion in 2013 to $2757 in 2014. Figure (1-16).

Figure 1-16

GPD at Current Prices in Arab Countries, 2011-2014

($ billion)



The GDP growth levels at fixed prices in the Arab countries have dropped during the period 2011-2014 from 5% in 2011 to 4.6% in 2012, 3.6% in 2013, and 2.5% in 2014.

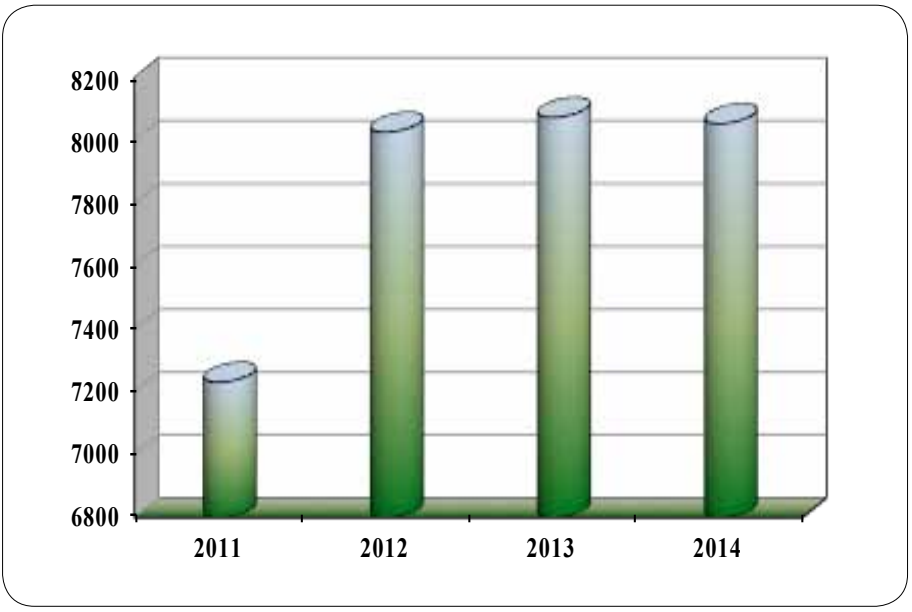
A noticeable change has been seen in the GDP's sectors' structure in the Arab countries in 2014. The sector of goods, share has dropped from 59.7% in 2013 to 57.3% in 2014; as upstream industries' share has shrunk from 38% to 34.2%, while downstream industries' share has increased from 9.1% to 9.8%, and the services sector's share has increased from 40.4% to 43.2%.

The average per capita GDP at current prices in Arab countries in 2014 has shrunk by 0.81% to reach $8004 compared to $8069 in 2013.

There were 7 countries in which the per capita GDP had exceed the overall average for the Arab countries, namely, Qatar ($96676), Kuwait ($40519), the United Arab Emirates ($48666), Bahrain ($25756), Saudi Arabia ($24454),Oman ($20485), and Lebanon ($12029). Figure (1-17).

Figure 1-17

Average GDP Per Capita at Current Prices in Arab Countries, 2011-2014 ($)



2- Population: Population in the Arab countries during 2011-2014 has increased by the rate of about 1.5%, where it increased from 361.7 million in 2011 to about 378 million in 2014. This rate has varied in 2014 between 2.3% in member countries and 2.0% in the other Arab countries.

3- Prices: A continued decline persisted in inflation rates average in the Arab countries from 6.3% in 2011 to 5% in 2014. This rate has varied in 2014 between 0.4% in Morocco and 36.9% in Sudan. Many Arab countries have increased petroleum products' prices in domestic markets in 2015.

Prices of petroleum products have slightly changed in some Arab countries in 2015. Other countries plan to increase these products' prices in 2016.

1-2 Energy Consumption by Source

It is projected that the total energy consumption in Arab countries will grow at a rate of 3.7% in 2015 compared to 0.6% in 2014, and 2% in 2013. Thus consumption will reach about 14.7 million boe/d in 2015, representing an increase of 500 thousand boe/d compared to its 2014 levels. The annual growth of the total energy consumption rates in the Arab countries will increase by 2.5% during 2011-2015.

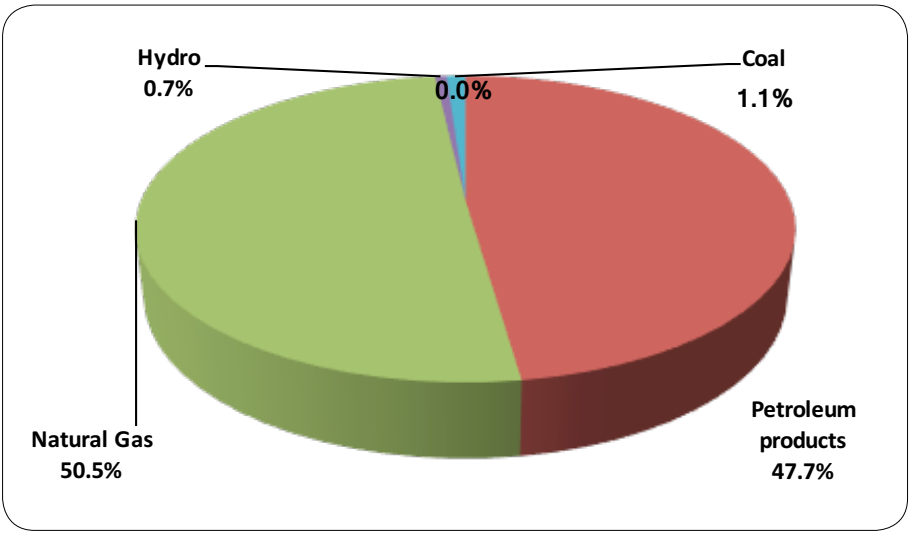
Natural gas is the prime source to meet energy needs in the Arab countries covering over a little more than half of the total energy consumption in these countries in 2011-2015. Natural gas share reached 50.5% of the total energy consumption of the Arab countries in 2015. Oil comes second meeting 47.7% of the total energy consumption. The two sources together meet 98.2% of the energy needs in the Arab countries. Other energy sources like coal and hydro-electrical power play a secondary role in the energy balance in the Arab countries with a combined share of no more than 1.8% in 2015.

There are discrepancies among Arab countries in terms of the importance of the energy sources' contribution to the energy balance. Natural gas plays a major role in OAPEC member countries, whereas oil is still the main source to meet non-OAPEC members' energy needs. Natural gas share reached 53.7% of the total energy consumption in OAPEC members in 2015 against 24.6% in the other Arab countries. Oil constituted nearly 67.5% of the total energy consumption in non-OAPEC countries, compared to 45.3% in the member countries, as shown in figure (1-18) and table (1-17).

Figure 1-18

Energy Consumption Structure in the Arab Countries, 2015

(%)



There is a clear disparity in the high energy consumption rates between Arab countries in 2015. The energy consumption has increased by 3.9% in the OAPEC countries compared to 2.3% in other Arab countries. The overall energy consumption has reached 88.9% in member countries and 11.1% in the rest of the Arab countries. This could be attributed to three main variables: differences in available hydrocarbon (oil and natural gas) reserves, disparity in the size and composition of GDP, and population.

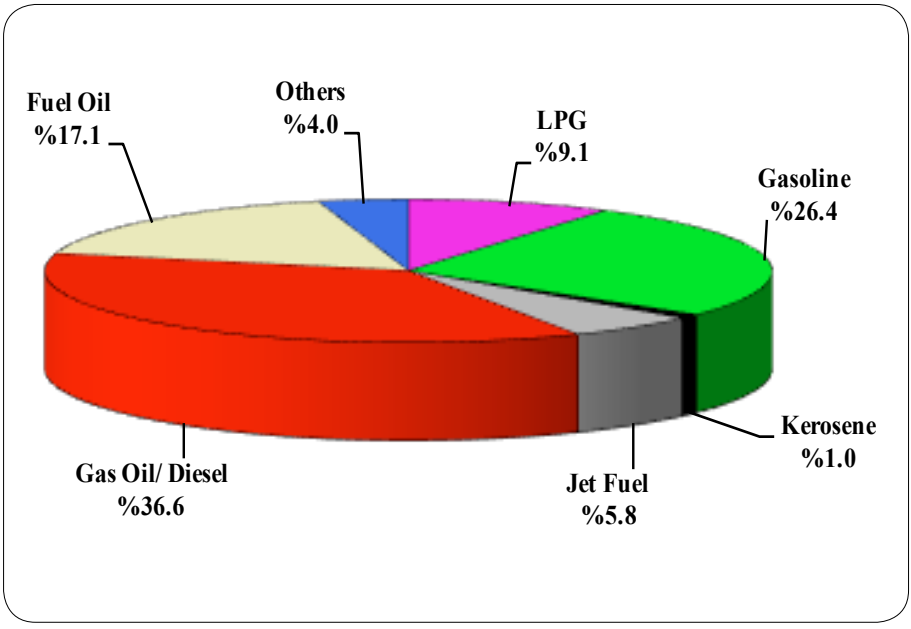
- Oil and natural gas reserves: The OAPEC member countries alone possess about 98.6% of total proven crude oil reserves and 97.7% of total proven natural gas reserves in 2015.
- GDP: The GDP of the OAPEC member countries accounted for about 85.5% of the total Arab countries GDP or about $2358 billion out of $2757 billion of Arab countries' GDP in 2014.
- Total population: The OAPEC member countries' population reached 250 million in 2014, representing 66.1% of the total population in the Arab World.

The per capita energy consumption average has increased slightly by 1.5% per year for the period 2011 - 2015 from 13.4 boe/d in 2011 to 13.9 boe/d in 2015. Figure (1-19) and Table (1-18) show the per capita energy consumption of the Arab countries in 2011 and 2015.

Figure 1-19

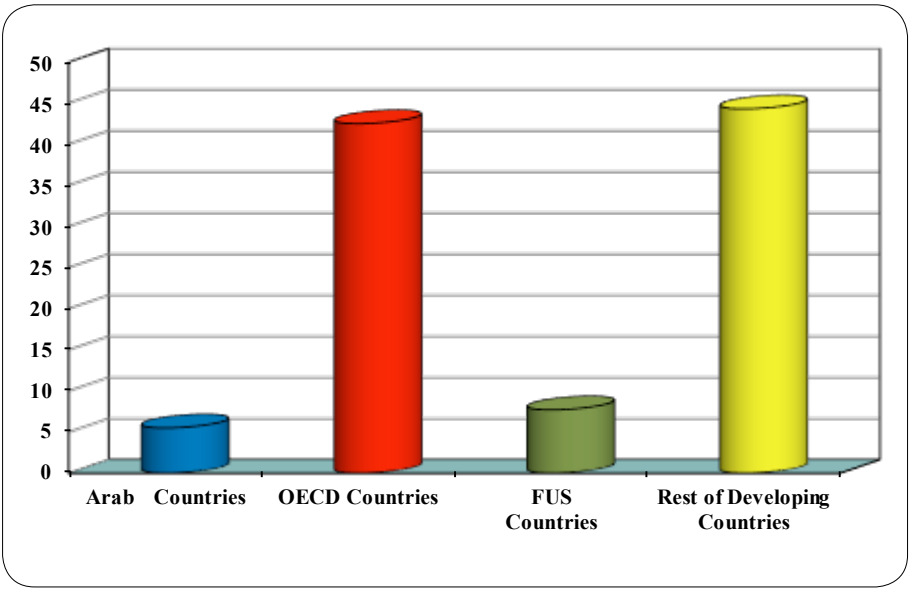
Per Capita Energy Consumption in the Arab Countries in 2015

(boe)



The Arab countries share of the world total energy consumption in 2014 was 5.5%, while that of the OECD countries was 42.5%, the developing countries 44.3%, and the FSU countries 7.7%, as shown in Figure (1-20).

Figure 1-20
Energy Consumption in Arab Countries and Other International Groups, 2014
(%)



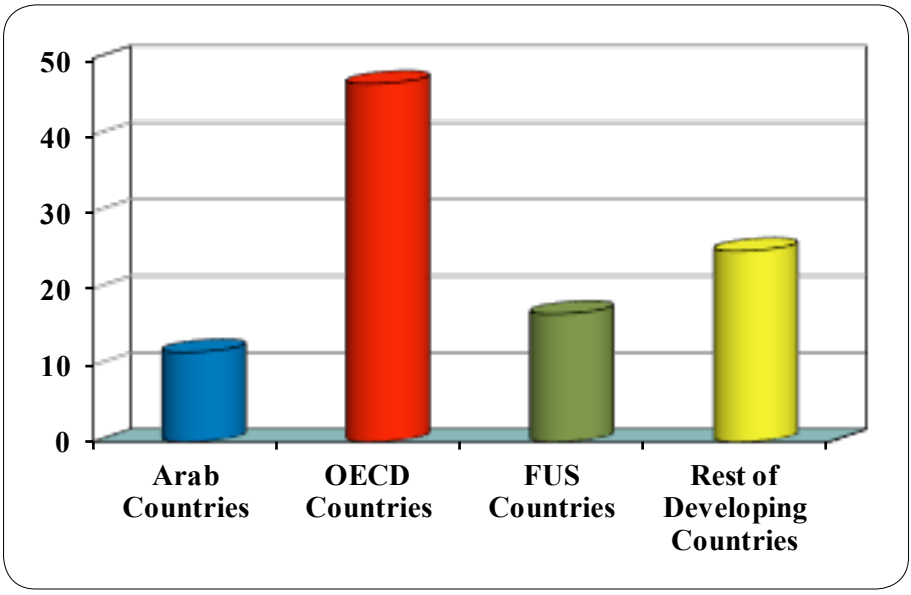
1-2-1 Natural Gas

Natural gas is considered the primary energy source that Arab countries depend on to meet their growing energy needs. Natural gas consumption in the Arab countries has risen by 2.4% per year from 2011 to 2015, accounting for 7.4 million boe/d in 2015 compared to 6.7 boe/d in 2011.

The OAPEC member countries accounted for 93.9% of the total consumption of natural gas in Arab countries in 2015. Other Arab countries' consumption has risen by 1.7% per annum during 2011-2015. OAPEC members' consumption has risen by 2.5% for the same period. Oman is the top consumer among non- OAPEC members. Small amounts of natural gas are consumed in Jordan, Morocco, and Yemen.

The Arab countries accounted for 11.7% of the total world consumption of natural gas in 2014, the OECD countries accounted for 46.7%, the developing countries 24.9%, and the FSU countries 16.7%, as shown in Figure (1-21).

Figure 1-21
Natural Gas Consumption in the Arab Countries and the World, 2014
(%)



1-2-2 Petroleum Products

Initial estimations indicate that 2015 has witnessed the return of growing petroleum products' consumption in the Arab World by about 4.4% compared to 0.8% in 2014, and 3.3% in 2013. Petroleum products' annual growth rate in Arab countries reached 2.6% during the period from 2011 to 2015 to reach 7 million boe/d in 2015 compared to 6.3 million boe/d in 2011.

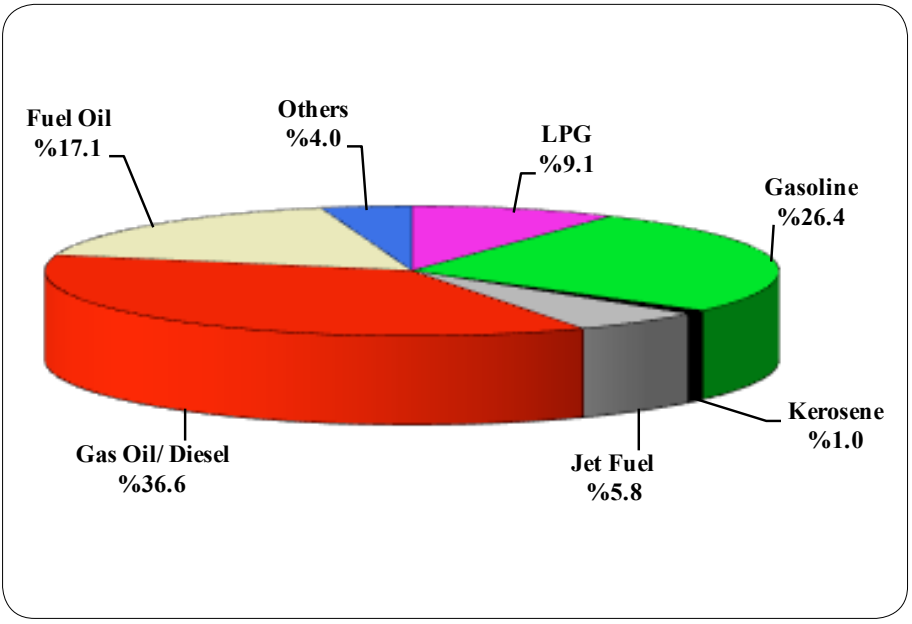
Member countries consume a large proportion of the petroleum products in the Arab countries; their share reached 84.3% in 2015.

As for the relative distribution of petroleum products consumption in the Arab countries in 2014, gasoil/diesel is the most consumed of petroleum products with a share of 36.6% followed by gasoline (26.4%), and fuel oil (17.1%). Other products came as follows: LPG (9.1%), jet fuel (5.8%), kerosene (1%), and other products together (4%). Figure (1-22) shows the relative distribution of petroleum products consumption in the Arab countries.

Figure 1-22

The Relative Distribution of Petroleum Products' Consumption in the Arab Countries, 2015

(%)

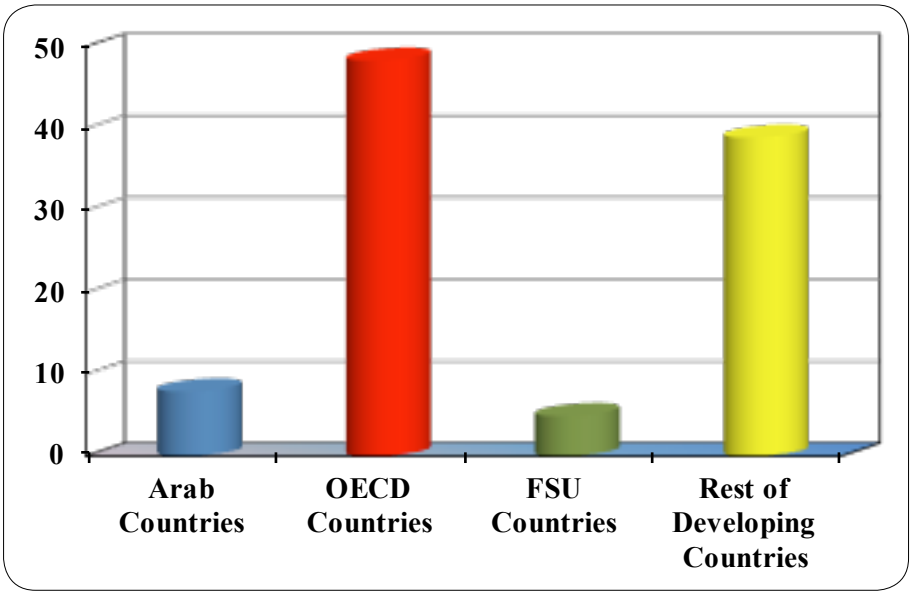


The Arab countries accounted for 7.9% of world oil consumption in 2014, while the OECD countries acquired 48.3%, the developing countries 38.9%, and FSU countries 4.9%, as shown in Figure (1-23).

Figure 1-23

Oil Consumption in the Arab Countries and the World, 2014

(%)



1-2-3 Hydroelectricity

Because Arab countries are facing scarcity of waterfalls, the hydroelectric power accounted for only 0.7%, or 100 thousand boe/d of the total Arab countries energy consumption in 2015. Egypt is the top Arab country that produces and consumes hydroelectric power with a total of 62 thousand boe/d.

The Arab countries consumed 0.6% of the total world consumption of hydroelectricity in 2014; 57.2% in the developing countries, 35.9% in the OECD countries and 6.3% in the FSU countries.

1-2-4 Coal

Coal consumption can be found on a very small scale in the Arab countries. Total coal consumption in 2015 was 162 thousand boe/d in 2015. Coal accounted for 1.1% of the total Arab energy consumption in 2015.

The Arab countries accounted for 0.2% of the total world coal consumption in 2014, while developing countries accounted for 68.5%, the OECD countries for 27.1%, and the FSU countries for 4.2%.

2- Total Energy Consumption in OAPEC Member Countries

2-1 Total and Per Capita Energy Consumption

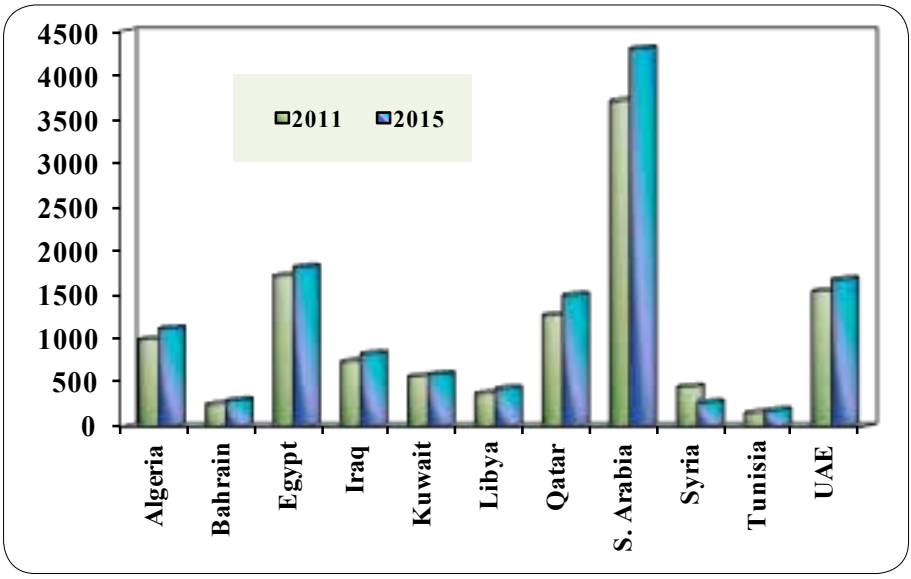
Energy consumption growth rates in OAPEC member countries fluctuated during 2011-2015 between 2.1% in 2011, 4.1% in 2012, 1.9% in 2013, and 0.4% in 2014, and rose to 3.9% in 2015. The annual growth rate for energy consumption in OAPEC member countries reached 2.6% during 2011-2015.

Member countries can be classified into two categories in terms of growth rates in energy consumption during the period from 2011 to 2015 as follows: countries with an annual growth rate exceeding the average growth rate in OAPEC members which is 2.6% per annum. And countries with an annual growth rate that did not exceed that average. The first category includes 7 countries: Bahrain and Qatar (4.2%), Tunisia (4.1%), KSA (3.8%), Libya (3.6%), Algeria (3%), and Iraq (2.9%). The second category includes 3 countries: UAE (2.1%), Egypt (1.5%), and Kuwait (1%).

The rise in energy consumption in the OAPEC member countries in 2015 is estimated at 485 thousand boe/d, where 160 thousand boe/d from Saudi Arabia, 74 thousand boe/d from Qatar, 67 thousand boe/d from UAE, 51 thousand boe/d from Egypt, and 43 thousand boe/d from Algeria. The increase of energy consumption in these five countries represents 81.5% of the total increase in energy consumption in all member countries. The increase in energy consumption in the other member countries varies as follows: Iraq (39 thousand boe/d), Kuwait (37 thousand boe/d), Libya (15 thousand boe/d), Syria (8 thousand boe/d), Bahrain (5 thousand boe/d), and Tunisia (2 thousand boe/d). Figure (1-24) and Table (1-19) compare OAPEC members' energy consumption in 2015 with 2011.

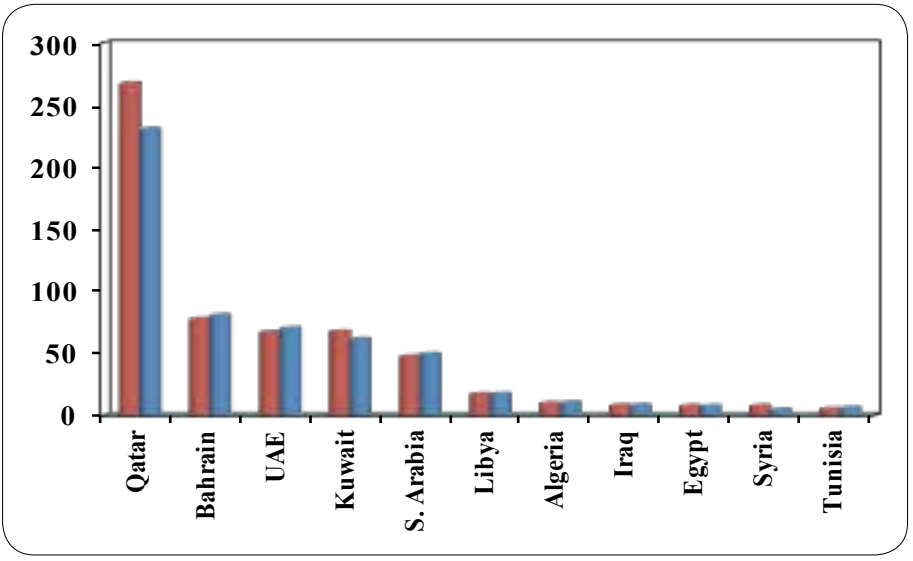
Figure 1-24

Energy Consumption in OAPEC Member Countries, 2011 and 2015
(Thousand boe/d)



The average per capita energy consumption in the OAPEC member countries rose slightly by 0.2% per annum in the period 2011-2015. There is a big disparity in this average among OAPEC members. The per capita consumption registered (230.6 boe) in Qatar, (80.7 boe) in Bahrain, (70.2 boe) in UAE, (61.6 boe) in Kuwait, (49.6 boe) in KSA, (17.4 boe) in Libya, (10.4 boe) in Algeria, (8.2 boe) in Iraq, (7.5 boe) in Egypt, (6.1 boe) in Tunisia, and (4.5 boe) in Syria. Figure (1-25) shows the average per capita energy consumption in the OAPEC member countries.

Figure 1-25
Per Capita Energy Consumption in OAPEC Member Countries, 2011-2015
(boe)

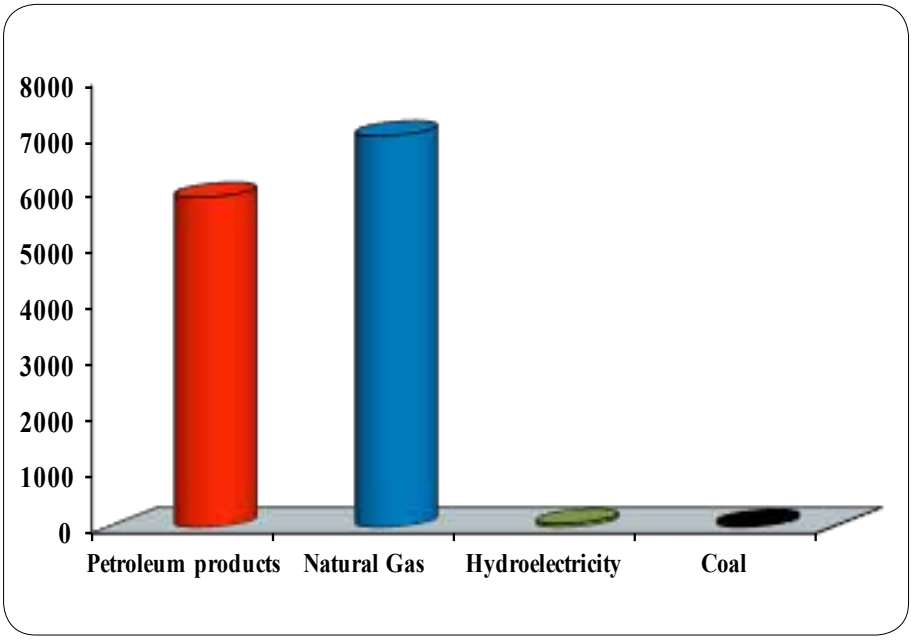


2-2 Energy Consumption by Source

Energy consumption patterns in OAPEC member countries were characterized by gradual transition from relying on oil to relying on natural gas to meet their economies' energy needs. This means many benefits, most important of which enhancing energy conservation, increasing crude oil export potentials, and reducing pollution levels. Natural gas share in the total consumption in the member countries was about 53.7% during 2011-2015; oil's share was 45.3%. Hydroelectricity and coal play secondary role with a combined share of no more than 1% of the total energy consumption in OAPEC member countries by source in 2015.

Figure (1-26) and Table (1-20) show energy consumption in OAPEC member countries in 2015 by source.

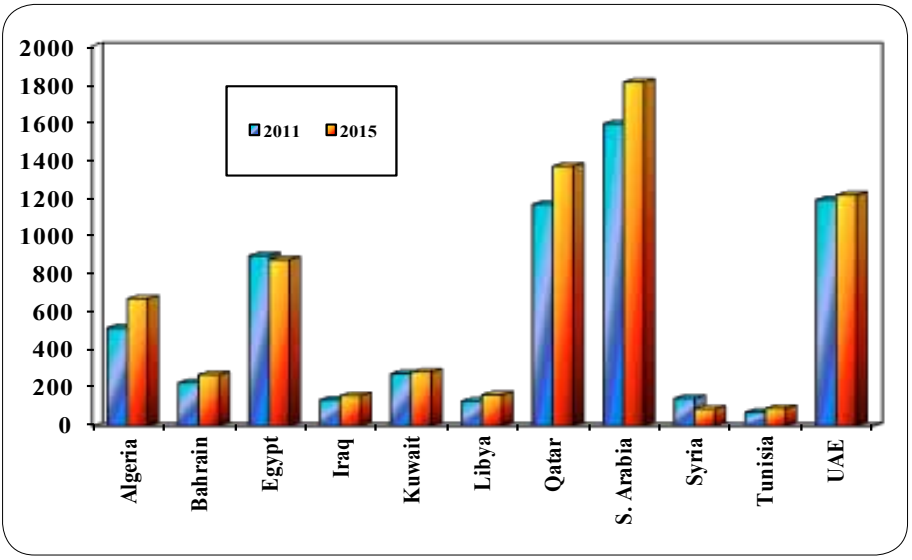
Figure 1-26
Energy Consumption in OAPEC Member Countries by Source, 2015 (Thousand boe/d)



2-2-1 Natural Gas

Natural gas consumption in the member countries has increased by an annual rate of 2.5% during the period 2011-2015. Primary estimations show that the size of natural gas consumption reached 7 million boe/d in 2015 compared to about 6.4 million boe/d in 2011. 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 was 84.8%. Their shares are as follows: Saudi Arabia (25.9%), Qatar (19.5%), the UAE (17.4%), Egypt (12.5%), and Algeria (9.6%), as shown in Figure (1-27) and Table (1-21).

Figure 1-27
Natural Gas Consumption in OAPEC Member Countries, 2011 and 2015
(Thousand boe/d)



There is a noticeable disparity among member countries in terms of their reliance on natural gas to meet their energy needs. OAPEC members can be classified into three categories depending on the relative importance of natural gas in their total energy consumption in 2015. 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. Four countries fall into this category: Qatar, Bahrain, the United Arab Emirates, and Algeria. The share of natural gas in total energy consumption in 2015 in these countries was 91.3% in Qatar, 90% in Bahrain, 72.5% in the United Arab Emirates, and 60% in Algeria.

Countries that depend mainly on natural gas to meet 33% to 50% of their energy needs. There are five countries in this category: Tunisia (49.7%), Egypt (48.1%), Saudi Arabia (42.1%), Kuwait (47.7%), and Libya (37.9%).

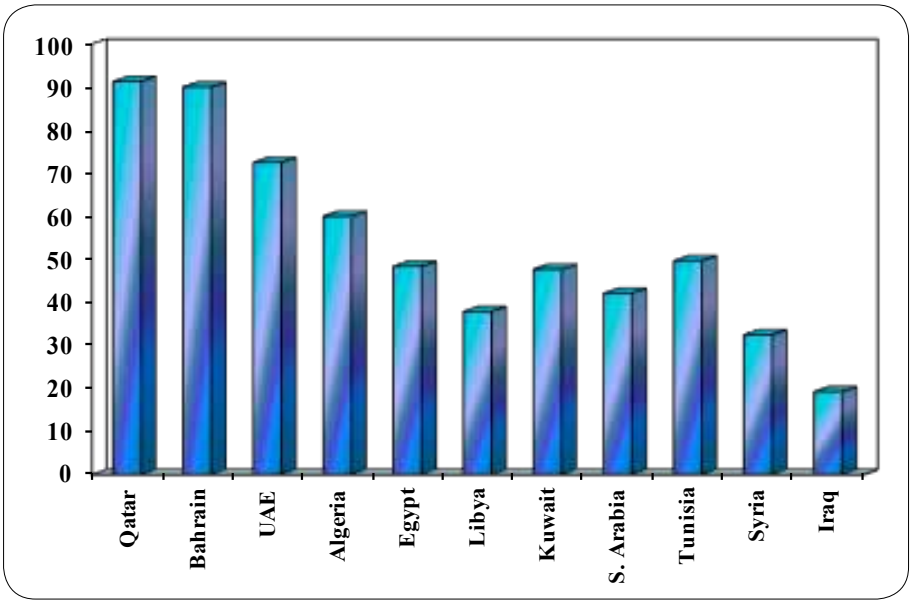
Countries that rely moderately on natural gas to meet their energy requirements. This category includes Syria (32.5%) and Iraq (19.3%).

Figure (1-28) shows the degree to which OAPEC member countries depend on natural gas to meet their energy requirements.

Figure 1-28

Natural Gas Consumption as a Percentage of Total Energy Consumption in OAPEC Member Countries, 2015

(%)



2-2-2 Petroleum Products

The period between 2011 and 2015 witnessed different developments in terms of annual growth rates of petroleum products' consumption in OAPEC member countries. High growth rates are found in the UAE (7.1%) and Qatar (6%). The rates reached 4.1% in KSA, 4% in Bahrain, 3.8% in Egypt, 2.7% in Iraq, 2.3% in Libya, 2.2% in Tunisia, and 1.2% in Kuwait. At the same time, petroleum products consumption has shrunk in Algeria (by 1.5%) and Syria

(by 12%). This situation has led to an increase in OAPEC member countries consumption rates by about 2.7% per annum during 2011-2015 from 5.3 million boe/d in 2011 to 5.9 million boe/d in 2015, representing 45.3% of the total energy consumption in the member countries.

The increase in petroleum products consumption in the member countries was 246 thousand boe/d in 2015: KSA (115 thousand boe/d), Iraq (34 thousand boe/d), Kuwait and Egypt (21 thousand boe/d each), and UAE (18 thousand boe/d). Table (1-22).

Member countries can be classified into two groups in terms of petroleum products share of the total energy consumption in 2015. The first group represents countries where petroleum products still covered more than half of their energy needs. It includes five countries: Iraq (80.7%), Syria (65%), Libya (51.2%), KSA (57.9%), and Kuwait (52.3%). The second category represents countries where petroleum products meet less than half of their energy needs. It includes six countries: Tunisia (49.7%), Egypt (47.3%), Algeria (39.4%), UAE (25.4%), Bahrain (10%), and Qatar (8.7%).

2-2-3 Hydroelectricity and Coal

Member countries are known to have rare water resources which directly affect their hydroelectric power production from waterfalls. This has meant that this source played a marginal and decreasing role in meeting energy requirements in member countries. The hydroelectric power share did not exceed 0.54% of the total energy consumption in 2015. Hydroelectric power production is found only in 4 member countries: Tunisia, Algeria, Syria, and Egypt, with a total of 71 thousan boe/d in 2015 in all 4 countries together, 62 thousand boe/d of which in Egypt. Table (1-23).

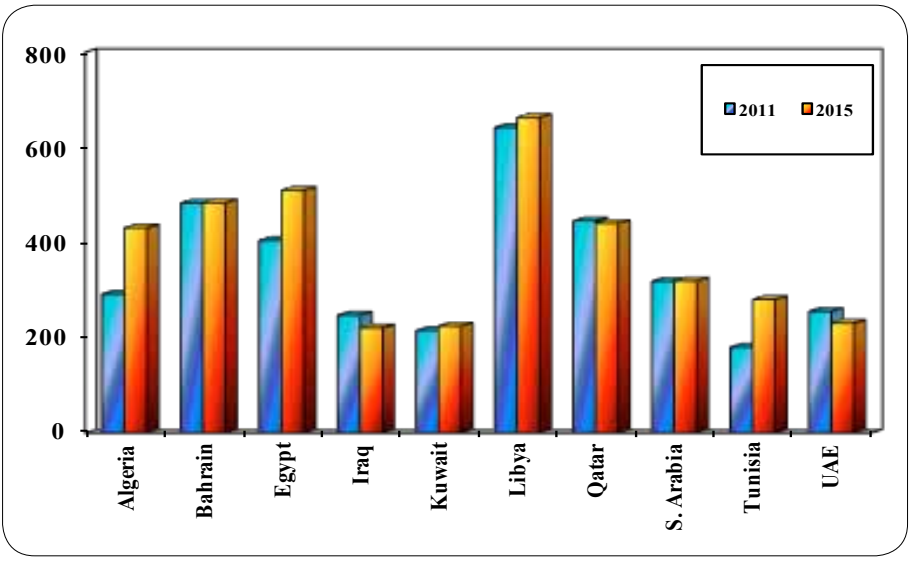
Coal contributed meagerly in the total energy consumption in member countries in 2015. It has not exceeded 0.48% or 62 thousand boe/d, 35 thousand boe/d of which in the UAE, 21 thousand boe/d in Egypt, and 6 thousand boe/d in Algeria. Table (1-24).

3- Energy Density in Member Countries

Energy density is good indicator of energy efficiency in the economies of different countries. The index is influenced by many factors that reflect standards of living and weather conditions. Countries with high standards of living consume of more energy than those with low living standards. High standards of living require using equipment and means that might not be available at countries with lower living standards. Also, countries with extreme hot weather in summer or cold weather in winter need to use more energy than countries with mild weather in both seasons.

When calculating the energy density indicator using the IMF data on GDP at fixed prices for the year 2010, it shows that this indicator has risen in the member countries from 317 tonnes of oil equivalent/$1million of the GDP in 2011 to 330 tonnes of oil equivalent/$1million in 2015. This index hides disparity among member countries in terms of its general level or its development. Table (1-25) and Figure (1-29) show clear disparities among member countries. The difference reached 221 tonnes of oil equivalent for every one million US dollars of the GDP in Iraq in 2015 compared to 663 tonnes of oil equivalent in Libya. The index maintained almost the same level in Bahrain and KSA during 2011-2015 but rose in Tunisia, Algeria, Kuwait, Libya, and Egypt. However the index dropped in the UAE, Iraq, and Qatar.

Figure 1-29
Development of Energy Density index In OAPEC Member Countries, 2011- 2015
(Tonnes of Oil Equivalent/$Million at 2010 prices)



4- Domestic Prices

The 2014 domestic prices for petroleum products unchamded rematches in 2015 In Member countries. Changes in davening prices of some petroleum products wear seem in five member countries in 2015: UAE, KSA, Syria, Qatar, and Kuwait. With the exception of Syria, these changes were moderate; and increased gasoline and gasoil/diesel in Qatar, and kerosene and gasoil/diesel in Kuwait. As for Syria, gasoline prices went up from 55 Syrian lira in 2014 to 100 Syrian lira; while LPG price has double 5 times hitting 1200 Syrian lira/12kgm gas cylinder as shown in Table (1-26).

2015

The Secretary General's 42nd Annual Report

TABLES

CHAPTER ONE

Table 1-1

Total & Annual changes in World Oil and NGLs Supply, 2011 - 2015

(Million b/d)

	2011	2012	2013	2014	2015*
Total Supply					
OPEC	35.3	38.0	37.2	37.4	38.0
Rest of the World	52.5	52.9	54.2	55.6	56.9
World total	**87.8**	**90.9**	**91.5**	**93.0**	**94.9**
Annual Change					
OPEC	1.1	2.7	(0.8)	0.1	0.6
Rest of the World	0.2	0.5	1.3	1.4	1.2
World total	**1.3**	**3.2**	**0.6**	**1.5**	**1.8**
Percentage Change (%)					
OPEC	3.3	7.6	(2.0)	0.4	1.6
Rest of the World	0.3	0.9	2.5	2.6	2.2
World total	**1.5**	**3.6**	**0.6**	**1.7**	**2.0**

* Estimated data.

** Data of 2014 and 2015 include Indonesia which resumption its full membership in december 2015.

Notes:

- Parentheses denote negative figures.
- OPEC›s supply includes data from both Angola and Ecuador, which were admitted to OPEC as a full member at the beginning and the end of year 2007 respectively.

Sources:

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

Table 1-2

Growth in the World Economy and Oil Demand by Region, 2011-2015
(%)

	2011	2012	2013	2014	2015*
OECD countries **					
GDP	1.7	1.2	1.1	1.8	2.0
Oil demand	(0.6)	0.2	0.1	(0.6)	0.9
Rest of the World					
GDP	6.3	5.2	5.0	4.6	4.0
Oil demand	3.4	1.9	2.9	3.2	2.4
World total					
GDP	**4.2**	**3.4**	**3.3**	**3.4**	**3.1**
Oil demand	**1.3**	**1.0**	**1.4**	**1.3**	**1.7**

* Estimated data.
** Include the newly industrialized Asian countries are Hong Kong, South Korea, Singapore, and Taiwan in terms of GDP.

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, 2011-2015
(%)

	2011	2012	2013	2014	2015*
OECD	1.7	1.2	1.1	1.8	2.0
Of which: Euro Area	1.6	(0.8)	(0.3)	0.9	1.5
Japan	(0.5)	1.7	1.6	(0.1)	0.6
USA	1.6	2.2	1.5	2.4	2.6
Eastern and Central Europe	**5.4**	**1.3**	**2.9**	**2.8**	**3.0**
Countries in transition (CIS)	4.8	3.4	2.2	1.0	(2.7)
Of which: Russia	**4.3**	**3.4**	**1.3**	**0.6**	**(3.8)**
Asian developing countries**	7.9	6.8	7.0	6.8	6.5
Of which: China	**9.5**	**7.7**	**7.7**	**7.3**	**6.8**
India	6.6	5.1	6.9	7.3	7.3
Latin America and the Caribbean	4.9	3.1	2.9	1.3	(0.3)
Of which: Brazil	**3.9**	**1.8**	**2.7**	**0.1**	**(3.0)**
Mexico	4.0	4.0	1.4	2.1	2.3
Middle East and North Africa	4.6	5.0	2.1	2.6	2.3
Sub-Saharan African countries	**5.0**	**4.3**	**5.2**	**5.0**	**3.8**
Rest of the World :	**6.3**	**5.2**	**5.0**	**4.6**	**4.0**
World	**4.2**	**3.4**	**3.3**	**3.4**	**3.1**

* Estimated data.
** Excludes Pakistan and Afghanistan.

Note: Parentheses denote negative figures.

Source:
- IMF, World Economic Outlook, October 2015.

Table 1-4

Total & Annual Change in World Oil Demand, 2011-2015 (Million b/d)

	2011	2012	2013*	2014	2015*
World total demand	**88.0**	**88.9**	**90.2**	**91.4**	**92.9**
Annual Change in World Oil Demand (Million b/d)	1.1	0.9	1.3	1.1	1.5
Change (%)	1.3	1.0	1.4	1.3	1.7

* Estimated data.

Note: Parentheses denote negative figures.

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

Table 1-5

World Oil Demand by Region, 2011-2015
(Million b/d)

	2011	2012	2013	2014	2015*
OECD countries	45.9	46.0	46.0	45.8	46.2
Rest of the World**	42.2	43.0	44.2	45.6	46.7
World total	**88.0**	**88.9**	**90.2**	**91.4**	**92.9**

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

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

Table 1-6

Total & Annual Change in Oil Demand in OECD Countries, 2011-2015 (Million b/d)

	2011	2012	2013	2014	2015*
North America	23.7	23.6	24.1	24.2	24.6
Western Europe	14.3	13.7	13.6	13.4	13.6
Pacific	7.9	8.6	8.3	8.2	8.0
Total OECD	**45.9**	**46.0**	**46.0**	**45.8**	**46.2**
Annual Change in demand	**(0.3)**	**0.1**	**0.1**	**(0.3)**	**0.4**
Change (%)	**(0.6)**	**0.2**	**0.1**	**(0.6)**	**0.9**

* Estimated data.

Note: Parentheses denote negative figures.

Sources:
- IEA, Oil Market Report (various issues).
- 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), 2011-2015 (Million b/d)

	2011	2012	2013	2014	2015*
Developing countries	**37.2**	**37.9**	**39.1**	**40.4**	**41.5**
Arab countries	**6.3**	**6.4**	**6.6**	**6.7**	**7.0**
Of which: Member countries	5.3	5.4	5.6	5.7	5.9
Other Arab countries	1.0	1.0	1.0	1.0	1.1
Other countries in the Middle East and Africa	**4.6**	**4.6**	**4.8**	**5.2**	**5.2**
Total Middle East and Africa	**10.9**	**11.0**	**11.4**	**11.9**	**12.2**
Asian developing countries	**19.9**	**20.6**	**21.1**	**21.9**	**22.6**
Of which: China	9.4	9.7	10.1	10.5	10.8
India	3.4	3.6	3.7	3.8	3.9
Other countries	7.1	7.2	7.4	7.6	7.8
Latin America	**6.4**	**6.3**	**6.5**	**6.6**	**6.7**
Of which: Brazil	2.8	2.9	3.0	3.1	3.2
Other countries	3.6	3.4	3.5	3.5	3.5
Countries in transition (CIS)	**5.0**	**5.1**	**5.1**	**5.2**	**5.2**
Of which: Russia	4.3	4.4	4.5	4.5	4.6
Total Rest of the World	**42.2**	**43.0**	**44.2**	**45.6**	**46.7**
Annual Change in demand of Rest of the World	**1.4**	**0.8**	**1.2**	**1.4**	**1.1**
Change (%)	**3.4**	**1.9**	**2.9**	**3.2**	**2.4**

* Estimated data.

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

Table 1-8

Spot Price of OPEC Basket of Crudes, 2010-2015 ($/barrel)

	2010	2011	2012	2013	2014	2015
January	76.0	92.8	111.8	109.3	104.7	44.4
February	73.0	100.3	117.5	112.8	105.4	54.1
March	77.2	109.8	123.0	106.4	104.2	52.5
April	82.3	118.1	118.2	101.1	104.3	57.3
May	74.5	109.9	108.1	100.7	105.4	62.2
June	73.0	109.0	94.0	101.0	107.9	60.2
July	72.5	111.6	99.6	104.5	105.6	54.2
August	74.2	106.3	109.5	107.5	100.8	45.5
September	74.6	107.6	110.7	108.7	96.0	44.8
October	79.9	106.3	108.4	106.7	85.1	45.0
November	82.8	110.1	106.9	105.0	75.6	40.5
December	88.6	107.3	106.6	107.7	59.5	33.6
First quarter	75.4	101.0	117.4	109.5	104.7	50.3
Second quarter	76.6	112.3	106.8	100.9	105.9	59.9
Third quarter	73.8	108.5	106.6	106.9	100.8	48.2
Fourth quarter	83.8	107.9	107.3	106.5	73.4	39.7
Annual average	**77.4**	**107.4**	**109.5**	**105.9**	**96.2**	**59.5**

Sources:

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

Table 1-9

Average Spot Prices of OPEC Basket,Brent,WTI and Selected Arab Crudes, 2011-2015 ($/barrel)

Crudes	2011	2012	2013	2014	2015	The increase in 2015
OPEC Basket Of which:	107.5	109.5	105.9	96.2	49.5	(46.7)
Algeria - Saharan Blend	112.9	111.5	109.4	99.6	52.8	(46.8)
Arabian Light	107.8	110.3	106.6	97.1	49.9	(47.2)
UAE - Murban	109.8	111.8	108.3	99.3	53.9	(45.4)
Kuwait - Export	105.6	109.0	105.1	95.2	48.2	(47.0)
Libya - Es Sider	111.9	111.9	108.6	98.4	51.4	(47.0)
Qatar-Marine	106.5	109.3	105.4	96.3	50.7	(45.6)
Iraq-Basrah	106.2	108.0	103.7	94.4	47.9	(46.5)
Other crudes						
Brent	111.3	111.6	108.7	99.0	52.4	(46.6)
UAE - Dubai	106.2	109.1	105.5	96.6	51.0	(45.6)
WTI	94.9	94.2	97.9	93.2	48.7	(44.5)

Note: Parentheses denote negative figures.

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

Table 1-10

Nominal and Real Prices of Crude Oil, 2000-2015 ($/barrel)

	Nominal Price	Index* 2000=100	Real 2000 Prices
2000	27.6	100.0	27.6
2001	23.1	101.8	22.7
2002	24.3	103.4	23.5
2003	28.2	105.1	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	114.3	60.5
2008	94.4	116.5	81.0
2009	61.0	117.3	52.0
2010	77.4	118.5	65.3
2011	107.5	120.1	89.5
2012	109.5	121.5	90.1
2013	105.9	123.0	86.1
2014	96.2	124.7	77.1
2015**	49.5	126.0	39.3

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

Sources:
-IMF, World Economic Outlook , October 2015.
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-11

Average Monthly Market Spot Prices of Petroleum Products, 2014-2015 ($/barrel)

	Market	Unleaded Gasoline	Gasoil* (50 ppm Sulfur)	Fuel Oil** (1 % Sulfur)
Average 2014	Singapore	110.9	113.7	88.3
	Rotterdam	115.1	112.9	87.1
	Mediterranean	110.6	113.3	88.1
	US Gulf	118.9	111.4	90.3
Average 2015	Singapore	69.2	66.2	45.9
	Rotterdam	75.5	66.0	40.2
	Mediterranean	69.4	67.2	42.1
	US Gulf	77.7	63.8	43.3
First quarter 2015	Singapore	67.2	69.3	50.2
	Rotterdam	71.0	70.0	43.2
	Mediterranean	66.1	71.4	45.5
	US Gulf	72.6	69.0	49.3
Second quarter	Singapore	81.1	76.7	57.7
	Rotterdam	87.9	76.6	50.7
	Mediterranean	82.4	78.3	52.4
	US Gulf	95.9	74.0	54.0
Third quarter	Singapore	69.1	62.9	41.7
	Rotterdam	79.6	63.6	37.9
	Mediterranean	72.4	65.3	38.8
	US Gulf	81.9	60.3	38.5
Fourth quarter	Singapore	59.4	55.8	34.2
	Rotterdam	63.6	54.0	28.8
	Mediterranean	56.5	55.0	31.6
	US Gulf	60.3	51.8	31.4

* US Gulf gasoil contains 0.2% sulfur.
** Singapore fuel oil contains 2.0% sulfur.

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

Table 1-12

Share of Tax in Gasoline Prices in some OECD countries, 2014-2015 ($/liter)

	October 2014				October 2015			
	Price without Tax	Tax	End-User Price	Tax (%)	Price without Tax	Tax	End-User Price	Tax (%)
Canada	0.74	0.35	1.10	32.18	0.51	0.30	0.81	36.72
France	0.77	1.09	1.86	58.46	0.50	0.95	1.45	65.47
Germany	0.79	1.14	1.92	59.10	0.51	0.97	1.48	65.70
Italy	0.85	1.32	2.16	60.92	0.54	1.12	1.65	67.47
Japan	0.89	0.63	1.52	41.68	0.56	0.55	1.12	49.55
Spain	0.85	0.89	1.74	51.32	0.57	0.75	1.31	56.94
United Kingdom	0.76	1.27	2.02	62.70	0.50	1.17	1.67	69.92
USA	0.73	0.11	0.84	13.37	0.49	0.12	0.61	19.67

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

Table 1-13

Spot Tanker Freight Rates, 2014-2015
(World scale)

	Arabian Gulf - East *	Arabian Gulf -West **	Mediterranean - Mediterranean ***
Average 2014	**49**	**30**	**105**
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	83
October	47	26	93
November	56	33	168
December	69	36	103
Average 2015	**65**	**38**	**108**
January 2015	69	39	113
February	60	36	128
March	53	29	116
April	62	34	105
May	70	43	115
June	67	39	134
July	73	41	95
August	39	26	94
September	55	33	73
October	76	46	96
November	64	38	112
December	88	53	120

* 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, 2014 & 2015 (Million barrel)

	First quarter		Second quarter		Third quarter		Fourth quarter	
	2014	2015	2014	2015	2014	2015	2014	2015*
Americas	**1311**	**1484**	**1382**	**1538**	**1416**	**1578**	**1446**	**1587**
Of which: USA	1083	1166	1077	1163	1054	1156	1084	1177
Europe	874	909	887	938	897	961	886	972
Pacific	399	375	405	429	436	449	405	451
Total OECD	**2584**	**2768**	**2674**	**2905**	**2749**	**2988**	**2737**	**3010**
Rest of the World	**2372**	**2456**	**2292**	**2580**	**2395**	**2732**	**2465**	**2815**
Total Commercial**	**4956**	**5224**	**4966**	**5485**	**5144**	**5720**	**5202**	**5825**
Oil at sea	**1034**	**1024**	**993**	**1076**	**1052**	**1070**	**1044**	**1164**
Strategic :	**1755**	**1846**	**1795**	**1855**	**1820**	**1856**	**1846**	**1853**
US Strategic Petroleum Reserves	696	691	691	694	**691**	**695**	**691**	**695**
Tota World Inventories	7745	8094	7754	8416	**8016**	**8646**	**8092**	**8842**
OECD Commercial (days supply)	56.9	60.9	59.4	63.0	**60.0**	**64.6**	**58.2**	**64.2**

* Estimated data.
** Excludes Oil at sea.

Sources:
- Oil Market Intelligence (various issues).

Table 1-15

Value of Oil Exports in OAPEC Member Countries, 2011-2015 ($ Million)

	2011	2012	2013	2014	2015*
Algeria	37289	34662	29807	26976	13804
Bahrain	6305	7269	7216	6034	3069
Egypt***	4689	4770	4590	4175	2148
Iraq	83768	92685	90411	81740	48924
Kuwait	79646	99735	97025	81923	44642
Libya	7391	41705	27659	7821	2501
Qatar	27328	21014	18162	21511	9728
Saudi Arabia	289518	307119	284906	264207	140358
Syria	2994	**	**	**	**
Tunisia	**	**	**	**	**
UAE	85900	93613	94495	76447	50344
Total	**624828**	**702572**	**654271**	**570834**	**315518**

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

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

Table 1-16

Value of OAPEC Oil Exports in Current and Real Prices, 2000-2015 ($ Billion)

Year	At Current Prices	Expressed in Real 2000 Prices
2000	177.2	177.2
2001	148.6	146.0
2002	142.0	137.3
2003	159.5	151.8
2004	219.0	204.1
2005	305.8	279.2
2006	375.1	335.6
2007	410.2	359.1
2008	585.3	502.4
2009	352.8	300.8
2010	450.9	380.5
2011	624.8	520.2
2012	702.6	578.3
2013	654.3	532.0
2014	570.8	457.7
2015*	315.5	250.4

* 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, 2011-2015 (Thousand boe/d)

	2011	2012	2013	2014	2015
Petroleum products					
Member countries	6353	6723	6739	6762	7000
Other Arab countries	375	369	411	411	400
Total Arab countries	**6728**	**7092**	**7150**	**7173**	**7400**
Natural gas					
Member countries	5310	5403	5629	5654	5900
Other Arab countries	999	1041	1027	1053	1100
Total Arab countries	**6309**	**6444**	**6656**	**6707**	**7000**
Hydroelectricity					
Member countries	68	73	67	70	71
Other Arab countries	24	23	29	29	29
Total Arab countries	**92**	**96**	**96**	**99**	**100**
Coal					
Member countries	52	62	62	62	62
Other Arab countries	91	96	100	100	100
Total Arab countries	**143**	**158**	**162**	**162**	**162**
Total Energy					
Member countries	11782	12261	12496	12548	13033
Other Arab countries	1489	1528	1566	1593	1629
Total Arab countries	**13271**	**13789**	**14062**	**14141**	**14662**

* Estimated data.

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

Sources:
- OAPEC - Databank.

Table 1-18

Per Capita Energy Consumption in the Arab Countries, 2011 and 2015
(Boe/year)

	2011	2015*
Algeria	9.9	10.4
Bahrain	77.8	80.7
Egypt	7.8	7.5
Iraq	8.1	8.2
Kuwait	67.6	61.6
Libya	17.2	17.4
Qatar	267.5	230.6
Saudi Arabia	47.7	49.6
Syria	7.8	4.5
Tunisia	5.4	6.1
UAE	67.2	70.2
OAPEC member countries	**18.4**	**18.6**
Other Arab countries	**4.3**	**4.6**
Total Arab countries	**13.4**	**13.9**

* Estimated data.

Sources:
- OAPEC - Economics Department.

Table 1-19

Energy Consumption in OAPEC Member Countries, 2011-2015 (Thousand boe/d)

	2011	2012	2013	2014	2015*	Growth Rate (2011-2015)
Algeria	992	1003	1018	1074	1117	3.0
Bahrain	255	265	282	295	300	4.2
Egypt	1715	1794	1824	1767	1818	1.5
Iraq	741	779	845	791	830	2.9
Kuwait	574	570	605	560	597	1.0
Libya	378	458	452	420	435	3.6
Qatar	1270	1294	1232	1423	1497	4.2
Saudi Arabia	3707	3939	3996	4140	4300	3.8
Syria	452	356	333	285	277	-11.5
Tunisia	159	171	177	185	187	4.1
UAE	1540	1632	1735	1608	1675	2.1
Total	**11783**	**12261**	**12499**	**12548**	**13033**	**2.6**

* Estimated data.

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

Sources:
- OAPEC - Databank.

Table 1-20

Energy Consumption in OAPEC Member Countries by Source, 2011-2015 (Thousand boe/d)

	2011	2012	2013	2014	2015*	Growth Rate (2011-2015)
Natural gas	6353	6723	6739	6762	7000	2.5
Petroleum products	5310	5403	5629	5654	5900	2.7
Hydroelectricity	68	73	67	70	71	1.3
Coal	52	62	62	62	62	4.7
Total energy	**11783**	**12261**	**12497**	**12548**	**13033**	2.6

* Estimated data.

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

Sources:
- OAPEC - Databank.

Table 1-21

Natural Gas Consumption in OAPEC Member Countries, 2011-2015 (Thousand boe/d)

	2011	2012	2013	2014	2015*	Growth Rate (2011-2015)
Algeria	517	576	595	642	670	6.7
Bahrain	229	237	253	265	270	4.2
Egypt	896	942	925	845	875	-0.6
Iraq	138	131	149	155	160	3.8
Kuwait	276	279	291	269	285	0.8
Libya	132	205	220	163	165	5.8
Qatar	1167	1181	1126	1307	1367	4.0
Saudi Arabia	1590	1712	1724	1764	1810	3.3
Syria	146	123	97	94	90	-11.3
Tunisia	73	81	86	92	93	6.3
UAE	1190	1256	1273	1166	1215	0.5
Total	**6353**	**6723**	**6739**	**6762**	**7000**	**2.5**

* Estimated data.

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

Sources:
- OAPEC - Databank.

Table 1-22

Petroleum Products› Consumption in OAPEC Member Countries, 2011-2015 (Thousand boe/d)

	2011	2012	2013	2014	2015*	Growth Rate (2011-2015)
Algeria	468	420	416	426	440	-1.5
Bahrain	26	28	29	29	30	4.0
Egypt	741	767	819	839	860	3.8
Iraq	603	647	696	636	670	2.7
Kuwait	298	291	314	291	312	1.2
Libya	247	253	232	257	270	2.3
Qatar	103	113	106	116	130	6.0
Saudi Arabia	2117	2227	2272	2375	2490	4.1
Syria	299	226	229	184	180	-11.9
Tunisia	85	89	90	92	93	2.2
UAE	324	341	427	407	425	7.1
Total	**5310**	**5403**	**5629**	**5654**	**5900**	**2.7**

* Estimated data.

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

Sources:
- OAPEC - Databank.

Table 1-23

Hydroelectricity Consumption in OAPEC Member Countries, 2011-2015
(Thousand boe/d)

	2010	2011	2012	2013	2014*	Growth Rate (2011-2015)
Algeria	0.6	0.7	0.2	0.3	1.0	12.2
Egypt	58.8	64.0	58.8	61.9	62.0	1.3
Syria	7.1	7.0	7.0	7.0	7.0	-0.4
Tunisia	1.0	1.0	1.0	1.0	1.0	0
Total	**67.5**	**72.7**	**67.0**	**70.2**	**71.0**	**2.6**

* Estimated data.

Sources:
- OAPEC - Databank.

Table 1-24

Coal Consumption in OAPEC Member Countries, 2011-2015 (Thousand boe/d)

	2011	2012	2013	2014	2015*	Growth Rate (2011-2015)
Algeria	6.0	6.0	6.0	6.0	6.0	0.1
Syria	0.1	0.1	0.1	0.1	0.0	-
Egypt	19.4	20.9	20.9	20.9	21.0	2
Egypt	26.1	35.4	35.4	35.4	35.0	7.8
Total	**51.6**	**62.2**	**62.2**	**62.2**	**62.0**	**4.7**

* Estimated data.

Sources:
- OAPEC - Databank.

Table 1-25

Energy Intisity in OAPEC member Countries, 2011 and 2015 (Toe/$million GDP)

	2011	2015*
Algeria	292.1	430.9
Bahrain	483.2	483.7
Egypt	404.7	510.0
Iraq	247.6	220.8
Kuwait	215.7	224.8
Libya	641.7	663.0
Qatar	445.9	440.3
Saudi Arabia	318.6	319.5
Syria	n.a	n.a
Tunisia	180.4	280.8
UAE	255.6	230.8
OAPEC member countries	316.6	330.2

* Estimated data.

Sources:
- OAPEC - Economics Department.

Table 1-26

Domestic Prices of Petroleum Products in OAPEC Member Countries, 2015 (Local currency/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	1.8-2.8	8.00*
Iraq	Dinar	-	450	150	400	160
Kuwait	Dinar	0.065	0.060	0.110	0.110	0.75*
Libya	Dinar	0.150	-	0.080	0.170	0.054
Qatar	Riyal	0.80	1.00	-	1.00	15.00*
Saudi Arabia	Riyal	0.90	0.75	0.61	0.33-0.45	0.72
Syria	Lira	100	-	40.0	60.0	1200*
Tunisia	Dinar	0.998	0.998	0.180	0.357	0.158
UAE	Dirham	1.79	1.68	3.25	2.34-3.42	0.93

* Per cylinder.

Sources:
- OAPEC - Databank.

2015

The Secretary General's

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CHAPTER TWO

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

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

I. OIL AND GAS

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

Exploration is a costly process, not to mention the high-risk variable and uncertainty linked to most of the factors considered when evaluating new areas. Usually, companies seek to increase spending on exploration per each additional barrel of oil produced in order to maintain a semi-fixed reserve/production ratio whenever possible.

However, the decline of the oil prices by late of 2014 has affected the exploration and production industry to the extent that a large number of international companies had to cut their budgets in 2015. The biggest challenge faces these companies was striking a balance between making short-term profits and continuing with long-run exploration, production, and development.

It is clear that the impact of declining oil prices had been more severe on small and medium size companies rather than big ones. Some small companies had to cut their budgets at very high rates like the US Magnum Hunter Resources that planned to spend $100 million on exploration and production investments in 2015 compared to $400 million in 2014, representing a reduction of 75%. Other examples include Canada's Pengrowth that endorsed a $200 million investment plan in 2015 against $770 million in 2014, representing a reduction of 74%. Although these companies are relatively small with limited size projects, the big reductions in their budgets indicate the extent by which the petroleum industry has been affected by the falling oil prices.

The falling oil prices have resulted in steering a large number of development operations to gas wells instead of oil wells in Canada. The number of rigs in this regard has reached 157 in December 2014, the highest number of rigs working in the gas sector in Canada since 2010. On the other hand, the number of oil rigs has dropped by 4.3% reaching 134 rigs. This transition has been linked to the declining prices of the oil produced in Alberta by 46%, whereas gas prices from the same area has dropped by only 35%.

Wood Mackenzie stressed that a trend has appeared among producers in the areas where gas is produced as associated gas, to drill in spots where larger quantities of associated gas is expected to be found.

As for big companies, budget cuts hit big amounts that sometimes exceeded $5 billion as is the case with BP which decided to cut expenditures allocated for Iraq's Al Rumailah oilfield by $1 billion.

Table (A) shows budget cuts in a number of big, medium, and small size companies between 2014 and 2015. It is noted that total budget cuts of these companies exceeded $35 billion.

Table A: Changes in some companies' budgets between 2014 and 2015

		Company ranking by reduction rate	Reduction $billion	Average $billion
1	UK	BP	4-6	5
2	USA	Apache Corp	2.1-5.5	3.8
3	CHINA	CONOOC	2.9-3.3	3.1
4	USA	EOG Resources	2.9-3.3	3
5	USA	Occidental	2.9	2.9
6	USA	ConocoPhillips	2.7	2.7
7	CANADA	CNRL	2.4	2.4
8	USA	Chesapeake Energy	1.48-1.67	1.6
9	USA	Marathon Oil	1.54	1.54
10	USA	Nobel Energy	1.16	1.16
11	CANDA	Suncor Energy	1	1
12	USA	Hess Corp	0.9	0.9
13	USA	Devon Energy	0.82-0.88	0.85
14	USA	Antero Resources	0.8	0.8
15	USA	Pioneer Natural Resources	0.74	0. 74
16	CANADA	Cenovus Energy	0.7	0.7
17	USA	Encana Corp.	0.7	0.7
18	USA	Antero Resources	0.58	0.58
19	CANADA	Pengrowth Energy	0.55	0.55
20	USA	Oasis Petroleum	0.5	0.5
21	CANADA	Cenovus Energy	0.35-.055	0.45
22	USA	Magnum Hunter Resources	0.3	0.3
23	USA	Carrizo Oil & Gas	0.158-0.165	0.16
Total reduction				**35.45**

In addition to this, many companies have reported large drops in profits which started to show in their reports as of Q1 of 2015. For example, Hess stated that their loss in Q1 of 2015 reached $389 million compared to profits reported at the same time in 2014 which were $386 million.

Table (B) shows the profits drop rates of some major international companies in Q1 of 2015 compared to Q1 of 2014:

Table (B): Revenues drop rates of some major international companies in Q1 of 2015 compared to Q1 of 2014

Company	Profit Drop
BP	20%
Total	22%
Chevron	43%
ExxonMobil	46%
Statoil	50%
Eni	55%
Shell	56%
ConocoPhillips	87%

The impact of declining prices has hit some companies operating in the Arab countries. Petroceltic and Hess Middle East made a decision to halt exploration in Iraq Kurdistan's "Dinarta License" by the end of Q1 of 2015. The two partners faced technical challenges during the drilling of Shirin-1 exploration well at a depth of 1430m in December 2014. Low oil prices did not encourage the partners to handle these challenges.

In spite of Norway's DNO ASA's successive successes in Iraq's Kurdistan, the company announced in Q1 of 2015 that it lost $26 million due to dropping oil prices. Its Yemeni affiliate has lost about $27 million due to the same reason. It also lost about $69 million of revenues in Q1 of 2015 due to the tense security situation in Yemen. Oil Search Ltd. has fully withdrawn from Yemen by selling its share "Al Barqa" , Block 7, Shabwa Basin, 340km eastern Sana'a. The permit includes Al Measher oil discovery in 2010, whose production was at a rate of 950 b/d when tested.

Wintershall ceased its activities in Qatar's Block 4 North near the Qatari North Field. The company explained on its website that access was not granted to the field's local infrastructure, making its operation there uneconomic.

On another note, UAE's Energy Minister said that declining oil prices would not affect the UAE plans to increase oil production to 3.5 million b/d in 2017.

Kuwait's Oil Minister stressed too that low oil prices would not affect the strategic investments in exploration, refining, and distribution in Kuwait.

However, declining oil prices did not prevent other companies from pursuing their activities in unconventional oils like ultra heavy oil, bitumen, and tar sands, especially in Canada, where a number of companies have announced extracting/recovering? Exhumed oil recovery from unconventional resources the end of 2014 and the beginning of 2015. Husky is one of these companies that started steam operations in the Sunrise project for oilsands. The first phase of the project includes the production of 60,000 b/d with two processing plants, which is expected to be reached by 2017. This project reserves are estimated at about 3.7 billion barrels, 440 million barrels of which in the form of proved reserves, while probable reserve are estimated at 2.4 billion barrels, and possible reserves at 860 million barrels.

Pengrowth Energy has begun steam generation in commercial quantities at its Lindbergh Thermal Project in the Cold Lake area of eastern Alberta.

Steam generation in large quantities is the first step towards producing oil from thermal projects. The corporation has been working for three years to reach that point in order to develop and produce about 1.6 million barrels of bitumen. It eventually produced at a rate of 1760 b/d from two appraisal wells, one for injecting steam and the other for production. The project upgrading plan includes 23 pairs of wells whose initial production would reach 50,000 b/d in 2018 following two later development stages.

Other projects in the same context include bitumen production from Kinosis 1 A in Alberta, where Nexen ULC is working to use steam-assisted gravity drainage (SAGD) technology in the project designed to produce 20,000 b/d of bitumen from 37 pairs of wells.

It might sound strange that work continues in these projects in spite of their high costs compared to conventional oil projects. However, the

reality is that such projects are not done on the spur of the moment considering the fact that capital expenses, constructions, infrastructure, equipment, licenses, etc, are all costs that have been paid already. Oil prices no longer have a direct impact on these costs except for the depreciation of the equipment that might be sometimes linked to oil prices but that would not be an instant burden for producers.

The US Energy Information Administration (EIA) issued a report in March 2015, in which it estimated the size of the Gulf of Mexico's production to increase between 2016 and 2017. The report also said that Brazil's Petrobras' production rate has exceeded 3million boe/d since the beginning of 2015 supported by the wells producing from offshore pre-salt layers . The report stressed that offshore development will not be affected by declining oil prices until they hit $50 per barrel. This is because long-term investment might not be largely affected by temporary price drop. IHS on its part has focused on shale oil production; it said in a study released mid 2015 that the US oil production growth rate will drop in mid 2015 due to the declining oil prices. The study showed that the breakeven price for quarter of the wells drilled in 2014 was $40/b WTI; whereas, $60 per barrel was the breakeven price for half of these wells. There are 30% of these wells whose breakeven price was $81 per barrel or more. IHS has depended on analyzing the data of 39 thousand shale oil wells. Breakeven price should cover capital and operational costs and post 10% of revenues on investments. EIA statements have actually showed a drop of more than 316 thousand b/d in the US total oil production in June 2015 compared to April of the same year. The statements did not explain the source of the drop; however, it is expected to be from shale oil wells.

Signs of slowdown in drilling activities have shown clearly across the world through drop in demand for rigs, compressors, and other equipments. Also, the signs of the impact of the declining prices have been embodied in a recovery in the shallow water rigs market. Ensco said that shallow water rigs market has witnessed a clear improvement in February 2015, while deep water rigs prices have dropped by more than 8%, therefore it stopped ultra-deep water drilling operations in March. The company's investment report for 2015 indicated to the company's intention to cut jobs by 15% in Q2 of 2015. It also showed

that 45% of offshore drilling platforms that it ordered and were under construction (58 platforms) had no future contracts.

Transocean has idled 8 of its 31 deep water rigs in March 2015. It said in a report that it has another 9 up for renewal in 2015. However, the idle rigs cost the company about $728 million/year. It is worth mentioning in this context that chartering rates for deep water rigs have reached $560 thousand/day in 2014, which dropped in Q1 of 2015 to $375 thousand/day. The number of idled submersible rigs has reached 34 in addition to 4 drilling ships.

However, this perspective that fits shallow water changes when it gets to deep water. Deep water drilling is a costly operation that faces big technical challenges. Most probably that only a few giant companies can absorb the declining prices shock to keep the deep or ultra-deep water drilling economically feasible.

In spite of the above, exploration and drilling activities did not cease in some countries around the world. For example, as part of the ongoing development plans in the UAE, the Abu Dhabi National Oil Company (ADNOC) and France's Total signed a new 40-year onshore concession agreement "Abu Dhabi Company for Onshore Petroleum Operations Ltd." (ADCO). The agreement grants Total a 10% participating interest. The concession covers the fifteen principal onshore oil fields in the UAE. Abu Dhabi Company for Onshore Petroleum Operations (ADCO) also signed a deal with China Petroleum Engineering and Construction Corporation (CPECC) to develop infrastructure for the company's Mender oilfield, 290km to the south of Abu Dhabi, and 125km southeast Asab oilfield. The contract covers building oil gathering stations, pipelines, power transmission lines, and sewage systems in the Mender oilfield. Mender's significance comes from the fact that it can produce up to 20,000 barrels per day. It is part of ADCO's plan to increase production from 1.6 million b/d to 1.8 million b/d by 2017. Mender is part of a larger South East Field Development Project, which includes other oilfields such as Asab, Shahil, Shah, and Qusawahira. Together, the three oilfields contribute to about one third of ADCO's production.

In **KSA,** Aramco decided to allocate an additional amount of $7 billion to boost its efforts on unconventional gas exploration. Baker and Hughes estimated that KSA has 19 trillion cubic metres of shale gas in the form of technically recoverable reserves. In its 2014 report, Aramco said that it made big investment in unconventional gas sector, which is expected to help in evaluating and developing the production of gas from shale rocks formations and tight sand formations in three targeted areas: north KSA, Greater Ghuwar, and east Jafoura. Aramco plans to deliver gas produced from the northern area to Maaden facilities in Waad Al Shamal city in 2016. By 2018, more gas required for domestic power generation in the northern area would be provided. As for Greater Ghuwar area, the report said progress has been made in the pilot project in Al Harmaliyah. The aim of the project is obtaining technical and operational data, where exploration and appraising work is still in progress to expand the reservoir base. The results of fracturing and stimulation operations in Jafoura basin have shown the presence of unconventional hydrocarbons source.

In **Iraq,** Missan Oil Company has announced in Q2 of 2015 that PetroChina has completed the drilling of 122 wells as part of upgrading "Halfaya" oilfield southern Iraq, in addition to 18 wells within Bazerkan oilfield. The oilfield has produced at a rate of 200 thousand b/d in 2014, following the execution of the first two phases of its upgrading between 2012 and 2014 at a cost of $3 billion. The third phase includes building a central processing station CPF-3 that can contribute to increasing the field production to 500 thousand b/d.

In **Kuwait,** Oil Company (KOC) signed a contract for the development the Lower Fars heavy crude oil reservoir planned by KOC to meet its oil production targets of 60 thousand b/d for 2018. KOC's CEO said that the project is a first step of heavy oil development plan. It will be followed by other stages to in rare production as part of KOC 2020 strategy.

In **Egypt**, Petroleum and Mineral Resources Ministry signed a number of oil and gas exploration agreements across the country. 5 agreements have been signed in November 2015; they cover Western Desert, the

Gulf of Suez, the Mediterranean, and the Nile Delta. The minimum investment has been about $2.2 billion while the total signatures bonus value reached $544 million. The agreements included drilling new 10 wells during exploration phase. 4 of these agreements are an activation of previously- signed agreements during Sharm El Sheikh Economic Conference in March 2015. They included contracts between Eni & Partners and Egyptian General Petroleum Corporation (EGPC), where the first agreement covers oil and exploration in the Gulf of Suez and Nile Delta at a minimum investment of $1.5 billion and a signature bonus of $500 million.

The second agreement is in the area to the north of Port Said with a minimum of $500 million of investment and a signaturebonus of $10 million. The third agreement is in Ashrafi in the Gulf of Suez with the partnership of Eni and ENGIE at a minimum investment of $40 million and a Signature bonus of $9 million. The fourth concession agreement is partnership between Eni and BP in Baltim, the Mediterranean, at a minimum investment of $80 million. The fifth concession agreement is to the south of Um Baraka in the Western Desert and is a joint venture between the Egyptian General Petroleum Company (EGPC) and the US Company Apache at a minimum investment of $30 million and a signature bonus of $25 million.

In Jordan, Canada's Questerre Energy Corporation entered into a memorandum of understanding (MOU) with the Ministry of Energy and Mineral Resources of the Hashemite Kingdom of Jordan for the appraisal and development of oil shale acreage in Jordan covering 388 square kilometers in the Isfir-Jafr area, about 200 km south of the capital, Amman. A total of 35 core holes have been drilled on these two blocks by the Natural Resources Authority of Jordan. The Company is analyzing available data from these wells to develop its work programme. The programme objective is to assess the economic, geologic, and hydrological potentials in the area, as well as, the feasibility of setting up a power plant run by oil shale.

Following are the most important Arab and international petroleum exploration and production developments:

1-1 Seismic survey

The number of operating seismic crews has dropped worldwide by 8% to 488 in 2015 compared to 2014 as shown in Table 2-1. The number had likewise dropped by 6% in 2014 compared to 2013. Except for the middle East, where the number went up by 2 crews to reach 25 crews /month and the unchanged number of 115 crews in the Far East, the rest of the world witnessed a drop in the number of crews as shown in Figure A.

Figure (A): Change of Seismic Crews Operating between 2014 and 2015

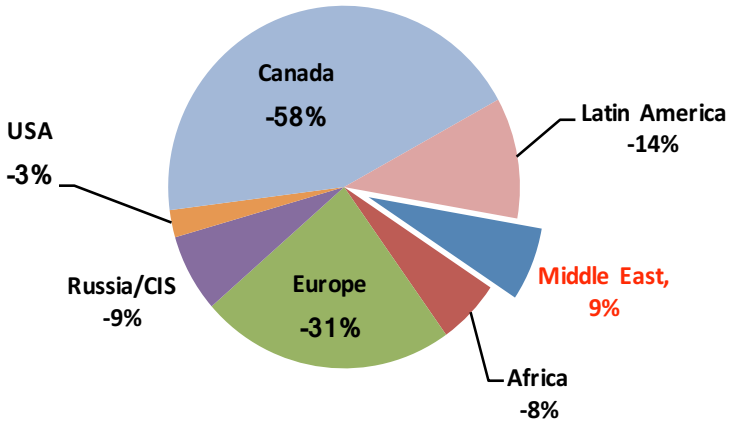
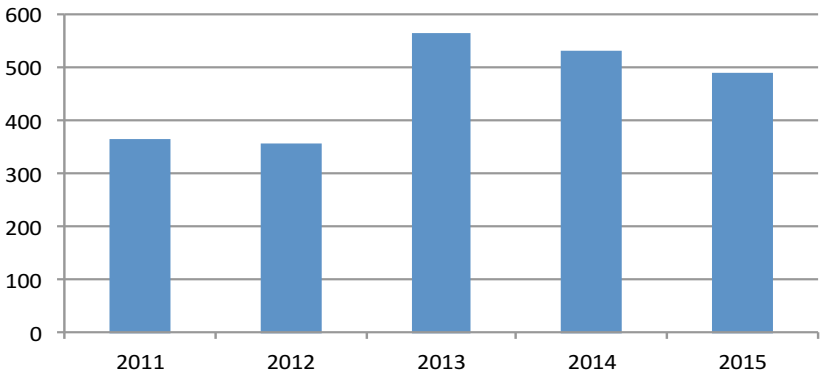


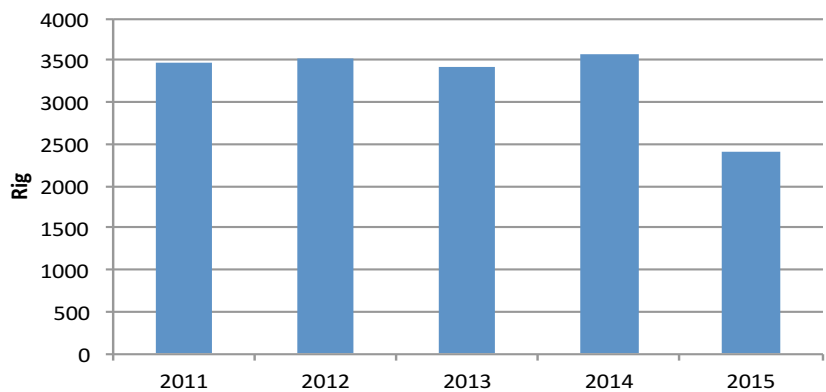
Figure 2-1
Seismic Surveys Worldwide, 2011- 2015
(Crew /Month)



1-2 Exploration and development drilling activities

The number of operating rigs across the world has dropped from 3580 in 2014 to 2402 in 2015, representing a drop of about 33% as shown in Table 2-2. Figure 2-2 shows the average number of operating rigs around the world between 2011 and 2015.

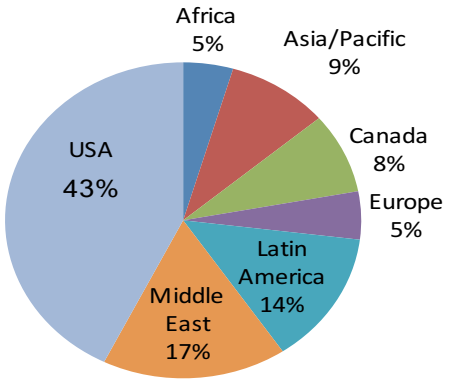
Figure 2-2
Average Number of Active Rigs Worldwide, 2011- 2015



Data for the period between January and October 2015

Figure 2-3 shows the distribution of operating rigs worldwide according to international groups.

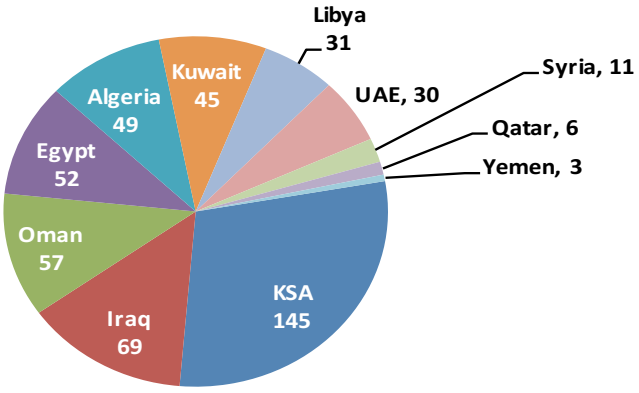
Figure 2-3
Distribution of Active Drilling Rigs Worldwide, 2015
(%)



Countries ranked according to rig number

As for Arab countries, OPEC data show that the largest number of operating rigs in 2014 was 145 in KSA. Yemen came last with only 3 rigs, as shown in Figure B.

Figure B: Operating Rigs in some Arab Countries in 2014



Since the USA tops the world's in terms of operating rigs number, the change in its rigs number affects the number of rigs worldwide. Generally, it is noticed that operating offshore rigs' rate against the total number of rigs operating in the USA has witnessed a continuous drop since 2011, from 5.9% in 2010 to 5.7 in 2011, and only 4.4% in 2015 as shown in Table C:

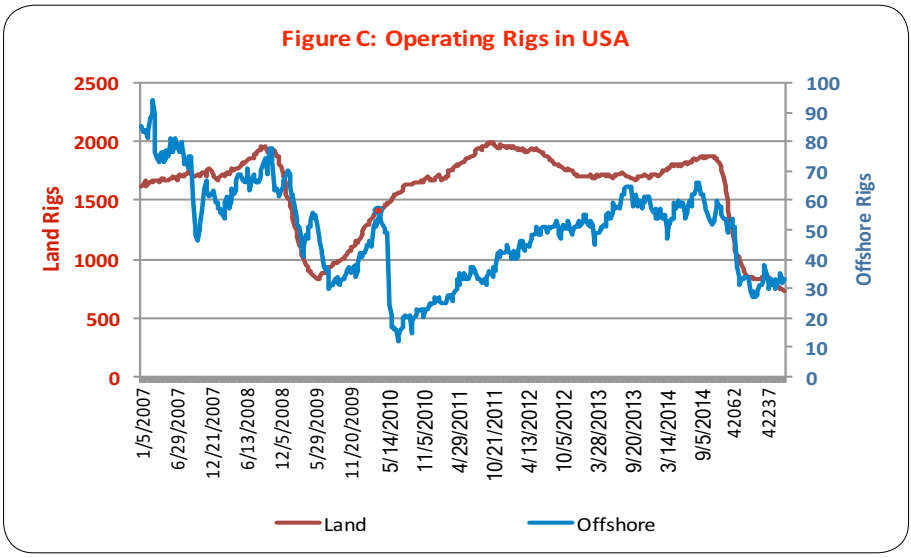
Table C:

Average number of operating rigs in the USA between 2010 and 2015

	Operating Rigs	Onshore	Offshore
2010	1546	1514	31
2011	1879	1846	32
2012	1919	1871	47
2013	1761	1705	56
2014	1862	1804	57
2015	1017	980	37

It could be that the Macondo blowout in the Gulf of Mexico oil spill in April 2010 has been one of the reasons behind the drop in the number of rigs following that year. That incident has contributed to limiting offshore drilling in the USA during that period, as the number of offshore operating rigs in the USA has been 48 since the beginning of 2010 until May; after that it dropped to only 20 rigs in the rest of the year, as shown in Figure C.

The same Figure shows that the number of operating onshore rigs in the USA did not drop during that period, on the contrary it continued to rise following a shrink back in 2008 due to the global economic crisis. This number has been affected by the trend towards shale oil production as it reached an average of 1814 operating onshore rigs. The Figure also shows that the number of operating rigs in the USA has been affected by the declining oil prices since 2014 to 1016 rigs in November 2015.



The red dot marks the Macondo blowout in the Gulf of Mexico.

Exploration operations in some Arab countries during 2015 have contributed in (Table 2-3) making a number of oil and gas discoveries including for example:

Repsol has made a gas discovery in the Illizi basin, in the southeast of Algeria. The discovery in Sud-Ouest-2 (TESO-2) exploration well in the Sud-Est Illizi block was made at a depth of 1307 metres and well testing delivered a gas flow rate of 175,000 cubic metres per day (m^3/day) and 90 barrels per day (bbl/d) of condensate.

In **Tunisia**, Mazarine Energy Tunisia made a new oil discovery through the exploration well Chouchet El Alrous in the Zaafrane permit. Well testing delivered 4300 b/d of oil and 395 thousand cubic metres of gas. Also, oil traces were found at Jawhara-3 well in the Sfax Offshore Exploration Permit.

In **KSA**, it is worth mentioning that Aramco's annual report 2015 mentioned that many discoveries were made which has not been announced back in 2014. Aramco, through its exploration programme, made 8 new field discoveries, the largest number in the company's history in a single year. These fields include: 5 gas fields Abu Ali, Faras, Amjad, Badi and Faris, with two oil fields, Sadawi and Naqa. The other

was an oil and gas field named Qadqad. This brings Aramco's total number of discovered fields to 129.

In **Libya**, Eni has made a new discovery of gas and condensates offshore Libya through the B1-16/4 well, drilled at a water depth of 150 meters, 82 kilometers from the coast in South Bahr Al Salam concession under Contact D. During the production test, the well flowed 820 cubic metres/day of gas, 600 thousand b/d of condensates. It is projected that the well will produce at a rate of 1.4 million m^3/d of gas, and 1000 b/d of condensates when it starts production.

Eni has also made another discovery through the exploration well A1-01/01 in the D contract area within Sabrata basin 140km offshore the Libyan coast at a depth of about 125 metres. The new discovery is 20km northern Bouri field. When tested, the well produced between 868 and 1338 boed.

In **Kuwait**, Kuwait Oil Company announced the discovery of 4 new fields and 2 new reservoirs north and west Kuwait, including 3 new light oil discoveries western the country to the north of Manakish field in Kabed fields (API °41), Umm Al Rous (API °42) and Raksa (API °46). Unconventional reservoirs have been discovered in the North of Kuwait in Al Rawdatain and Umm Al Naka fields, where light oil (API °41) was discovered in addition to heavy oil (API °18) in lower favor formation in Umm Al Naka field. The company did not provide any data on the size of discoveries nor test results.

In **Egypt**, Eni announced a new discovery in west Maliha area in the Western Desert 300 km to the south of Alexandria. MWD1X well was drilled to a depth of 4175 meters through 20 metres of light oil (API °40) pay rocks within Alam Al Buwaib formation of the Lower Cretaceous. The company also foud traces of gas and condensates in the Upper Jurassic Safa formation. The well started production at a rate of 2100 b/d. it was decided to transfer production to the neighbouring Maliha field. The company plans to drill appraisal and development wells within the aforementioned discovery expecting production to hit 8000 b/d in 2016.

Also, Eni has announced in mid-March 2015 the discovery of what it believes to be the largest gas field ever found in the Mediterranean Sea, the discovery could hold a potential of 849 billion cubic metres or 5.5 billion barrels of oil equivalent. The discovery was made in Zohr concession within Shurouk block in waters with a depth of 1450 meters. Zohr-1X was drilled to a total depth of 4,131 meters, on the way penetrating a 630-meter column of hydrocarbon-bearing carbonate rock of Miocene age across 100 square kilometres. The reservoir formation included more than 400 meters of net pay. A deeper Cretaceous formation that would be targeted later with a dedicated well held additional gas potential. By the end of August 2015, Egyptian ministry of Petroleum and Mineral Resources said that Eni will resume drilling activities in the beginning of 2016 with 3 development wells using the available infrastructure. Development is scheduled to take 30-36 months.

BP made a new gas discovery through Atoll-1 well in the North Damietta Offshore Concession in the East Nile Delta, 80km to the north of Damietta. The well was drilled to a depth of 6400 metres in waters with a depth of 923 metres. The company did not provide information on the size of the discovery.Moreover, a new discovery was made in in the Nooros field through Nidoco NW3 well with a Stoiip of about 15 billion cubic metres. Another oil discovery was made in Western Ish Al Mallaha2 block through South Malak 2 Well. When tested, the well's production was at a rate of 430 b/d.

Non-member Arab countries have made some new discoveries too. In Mauritania, Kosmos Energy made a gas discovery through Tortue-1 exploration well, drilled in Block C-8 to a depth of 4,630 meters within waters with a depth of 2700 metres, 285km offshore the country. Another discovery was made in the same block through the Marsouin-1 well, drilled at a depth of 2400 metres penetrating 70 metres of gas bearing associates. The company did not provide information on the said discoveries but mentioned on its website that the discoveries enhance the potential of the presence of a petroleum play between Mauritania and Senegal in the Upper Cretaceous rocks.

In Morocco, Gulfsands announced the completion of drilling operations on the Dardara Southeast 1 well (DRC-1), located within

the Rharb Centre Permit in Northern Morocco. When tested, the well produced at a rate of 200 thousand cubic metres/day of gas without any signs of play water or sand. Also, Kosmos found gas and condensate traces in Laayoune basin through the 5700 metres' deep CB-1 well, drilled in waters with a depth of 2135 metres, 170km offshore Morocco. The discovery proved to be uncommercial which led to abandoning the well that cost $85 million. The company, however, stressed the well's important exploration value as it will reduce risks of the next exploration operations in the basin.

Also, there have been many discoveries around the world, taking into consideration that any announcement on new discoveries should be scrutinized first. This is especially true to unconventional oil discoveries (shale oil and tight rocks oil) since many announcements are made before completing the full technical data for commercial reason related to a company's bonds in the stock market.

For example, UK Oil & Gas Investment announced in April 2015 an oil discovery near Gatwick Airport, which was described by the company as the largest onshore discovery in Britain in 30 years. The discovery's Stoiip is estimated at about 100 billion barrels. Although the figure looks big at first, which made the company's shares jump 200% when the announcement was first made, a technical memo published later on the company's website on 4 June 2015 showed that the discovery was tight oil in low permeability rocks. The memo added that the presence of reserves in any reservoir does not necessary mean that it is commercially feasible. Recoverable reserve in this case might not exceed 3 billion barrels.

Other examples include the assessment of Mackenzie Plain in Canada. Canada's National Energy Board announced that the basin includes 151 billion barrels of shale oil according to data of the Northwest Territories Geological Survey (NTGS) Division. In a following report, the Board pointed out that there were no well testing data of the said basin. It only said that if the Recovery Factor (RF) was only 1%, this would mean the presence of more than 1.5 billion barrels of recoverable reserves. It is worth noting that the area under study covers more than 18,000 square kilometres.

The number of discoveries made in 2015 was estimated at about 91, 45 of which were oil discoveries, in addition to 45 gas discoveries, one shale oil discovery in China with a Stoiip of about 730 million barrels.

It was noted that a large number of discovery made in 2015 were offshore. Details can be found in "New Discoveries in 2015" table in Chapter 2 of this report, the Tables Section. It was also noted that among 37 offshore discoveries, there were 15 shallow waters discoveries (less than 300 metres), 12 deep water discoveries (300-1500 metres), and 10 ultra-deep water discoveries (more than 1500 metres), including 2 gas discoveries in Mauritania at depths of 2400 and 2700 metres.

OAPEC member countries made 9 oil discoveries and 7 gas discoveries. Non-OAPEC member countries made 6 gas discoveries with no oil discoveries. Total new discoveries in the Arab countries were 22 discoveries: 9 oil discoveries, and 13 gas discoveries.

Figure 2-4 shows the number of oil discoveries in Arab and member countries. Figure 2-5 shows the number of gas discoveries in Arab and member countries.

Figure 2-4
Oil Discoveries in OAPEC and Non- OAPEC Arab Countries

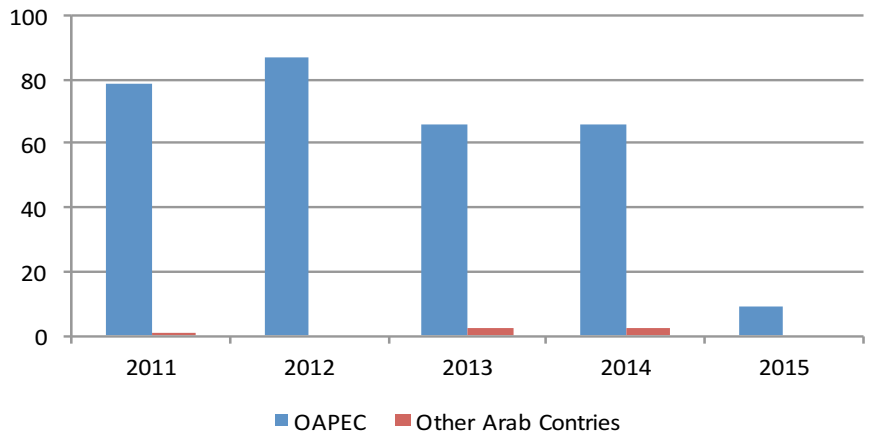
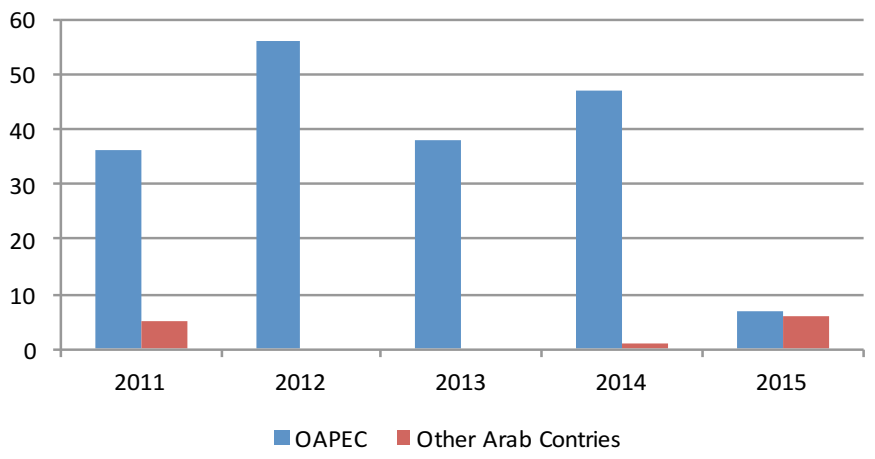


Figure 2-5
Gas Discoveries in OAPEC and Non- OAPEC Arab Countries



2-1 Oil and Natural Gas Reserves

2-1 Oil Reserves

Conventional oil reserves estimates have risen in the beginning of 2015 to reach 1285.4 billion barrels; a slight increase of no more than 0.25% against 2014 estimates of 1282.3 billion barrels. Total estimates increase reached about 3 billion barrels.

Oil reserves of OAPEC or non- OAPEC Arab countries remained with no significant change. As for the world, reserves estimates in Brazil and the USA have risen by about 0.87 and 3.4 billion barrels respectively. China has added about 450million barrels to its proven reserves. Oil reserves estimates have dropped in the UK, Norway, Mexico, and Canada as shown in Table 2-4.

Figure (2-6), shows the Distribution of the world conventional oil reserves by the end of 2015

Figure 2-6
World Oil Reserves , International Grouping
Year end 2015

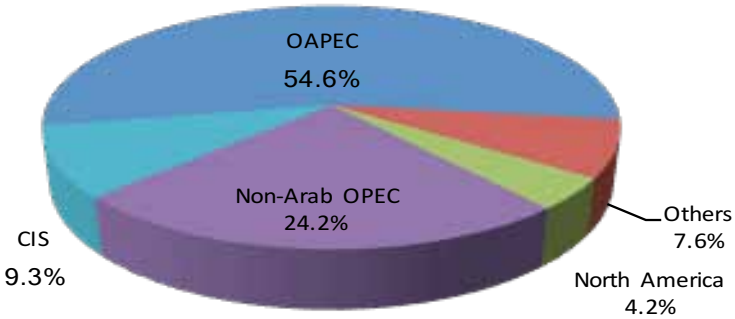
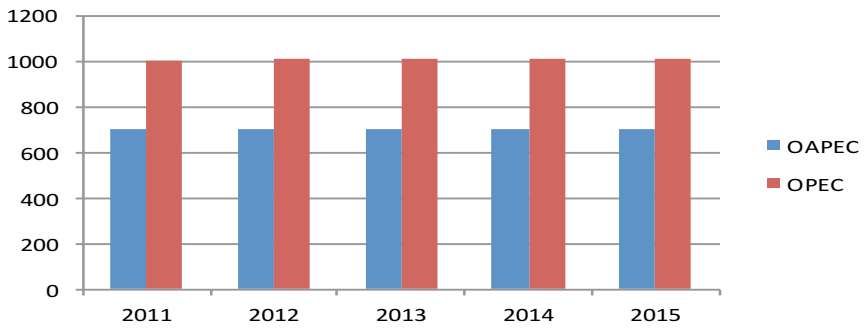


Figure (2-7) shows OAPEC and OPEC members' proven oil reserves development between 2011 and 2015. It is noted that oil reserves of OAPEC members has dropped compared to the world reserves from 56.3% in 2011 to 54.6% , although OAPEC member countries' reserves have risen by about 3.35 billion barrels during that period. Also, OPEC reserves reported a drop compared to the world reserves from 80.5% in 2011 to 78.3% in 2015, in spite of the fact that OPEC added more than 6 billion barrels to its reserves estimates. Thus, the drop of the two organisations' reserves can be attributed to the increase in the rest of the world's oil reserves estimates.

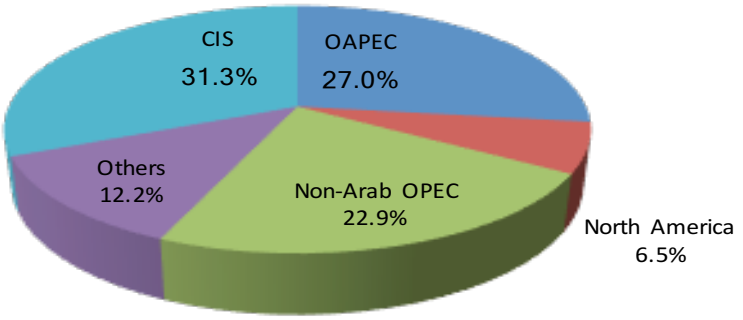
Figure 2-7
Oil Reserves in OAPEC and OPEC Member Countries
(Billion barrel at year end)



2-2 Natural Gas Reserves

Natural gas reserves estimates increased by 0.4% from 195.87 trillion cubic meters in 2014 to 196.75 trillion cubic meters in 2015. Figure (2-8) and Table (2-5) show the distribution of the world's natural gas reserves according to international groups.

Figure 2-8
World Natural Gas Reserves, International Grouping
year end 2015



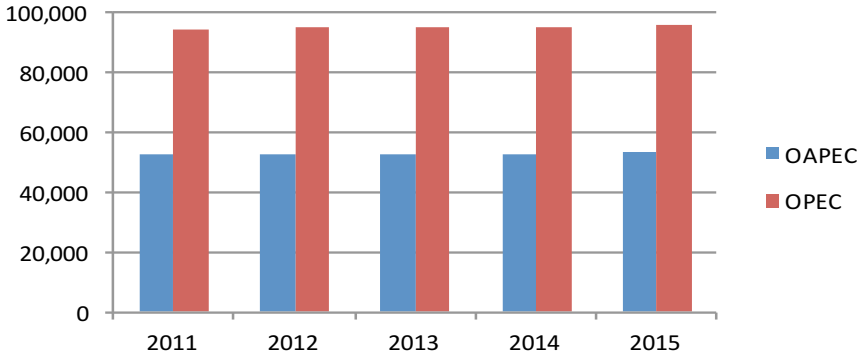
Gas reserves estimates in Arab countries have not changed except for Saudi Arabia where gas reserves estimates increased by 2.1% from about 8.32 trillion cubic meters in 2014 to about 8.489 trillion cubic meters in 2015. OAPEC members' natural gas reserves estimates were 53.12 trillion cubic meters in 2015 against about 52.95 trillion cubic meters in 2014. Combined Arab countries' natural gas reserves reached about 54.4 trillion cubic meters in 2015.

Natural gas reserves estimates increased in a number of countries around the world like Angola (from 275 billion cubic meters in 2014 to 308 billion cubic meters in 2015) and Ecuador (from 6 billion cubic meters in 2014 to 11 billion cubic meters in 2015). This has contributed to increasing OPEC gas reserves estimates by 0.3% from 95.32 trillion cubic meters in 2014 to 95.56 trillion cubic meters in 2015. Figure (2-9) shows the development of natural gas reserves in member countries and OPEC members.

Moreover, US gas reserves estimates have risen by 9% reaching 10.44 trillion cubic meters in 2015 against about 9.58 trillion cubic meters in 2014. China's gas reserves estimates have also risen from 4.64 trillion cubic meters in 2014 to 4.95 trillion cubic meters in 2015.

On the other hand, natural gas reserves estimates have dropped in many countries like Brazil, the UK, Norway, Mexico, and Canada variably as shown in Table 2-5.

Figure 2- 9
Natural Gas Reserves in OAPEC and OPEC Member Countries (Billion cubic meter at year end)



3. Hydrocarbon Liquids and Natural Gas Production

3-1 Hydrocarbon Liquid Production

3-1-1 Oil Production

Estimates indicate that the world's oil production has increased from 76.2 million b/d in 2014 to more than 78 million b/d in 2015, as shown in Table (2-6).

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

Available figures show that oil production rate estimates in member countries have increased by 4.3%, from 21.7 million b/d to 22.65 million b/d, representing an increase of about 941 thousand barrels/day between

2014 and 2015. Saudi production has also increased from 9.71 million b/d in 2014 to 10.19 million b/d in 2015. Iraq followed with an increase of about 371 thousand b/d, then the UAE (177 thousand b/d), Egypt (91 thousand b/d between 2014 and 2015). Thus, the total increase in these 4 countries' production is about 1.13 million b/d. however, estimates in other member countries show a drop in oil production rates by about 188.7 thousand b/d, especially Libya as OPEC data indicated a decline of 14.2% to reach 412 thousand b/d in 2015 compared to about 593.4 thousand b/d in 2014. Data also show a drop in the production rate of Algeria and Qatar by about 45 thousand b/d each, Kuwait by about 24.8 thousand b/d. Production also dropped in Bahrain, and Tunisia. Syria's production has dropped for the fifth consecutive year to reach 9700 b/d only until the end of Q3 of 2015, representing 3% of Syria's oil production in 2011.

As for non-OAPEC Arab countries, the Sudanese oil production has dropped from 122 thousand b/d to 120 thousand b/d. Yemen's crude production estimates have dropped sharply, due to the country's security situation, from 140.2 thousand b/d in 2014 to 24 thousand b/d. However, Oman's oil production has increased by 2.9% from 857 thousand b/d in 2014 to 882 thousand b/d in 2015.

Therefore, combined Arab countries' production rate has increased by about 3.7% from 22.8 million b/d in 2014 to about 23.7 million b/d in 2015.

OAPEC member countries' production has represented about 29% of the world's total oil production in 2015. Combined Arab countries' output represented about 30.4% of the world's production.

3-1-1-2 The rest of the world

Estimates indicate a drop in the oil production of all non-Arab OPEC member countries, except Angola, whose output has risen by about 115 thousand b/d. production has dropped in Iran, Venezuela, Nigeria, and Ecuador at various rates as shown in Table 2-6.

In general, OPEC output has risen basically due to the increase in KSA's and Iraq's production. Production estimates reached more than 31.5 million b/d in 2015 against about 30.7 million b/d in 2014.

Production rate estimates have risen also in Brazil, UK, Norway, Canada, and the Commonwealth, as well as, China whose output has increased by about 87 thousand b/d between 2014 and 2015.

The USA's average output has risen by 10.6% from 8.47 million b/d in 2014 to 9.37 million b/d until Q3 of 2015.

However, observing the EIA's monthly output figures shows that the USA's production rates have peaked (9.4 million b/d) in April 2015, but have dropped by about 490 thousand b/d until October 2015 as shown in Figure D.

Figure D: USA Oil Production

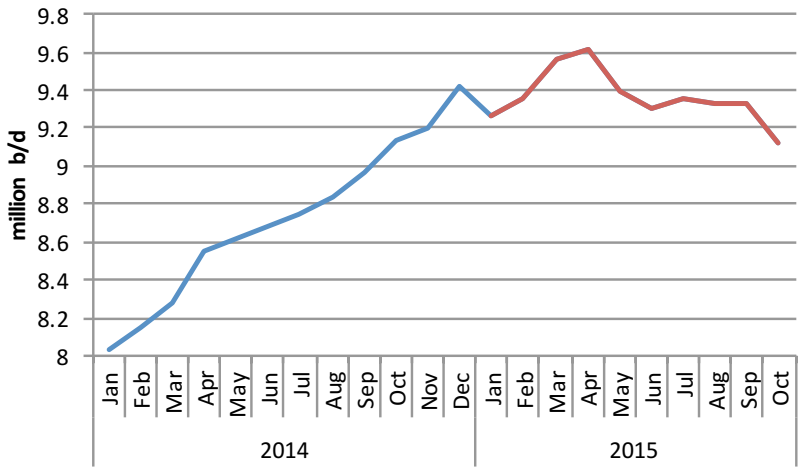


Figure 2-10 shows oil production rates according to international groups, while figure 2-11 shows oil production rates in OAPEC and OPEC member countries.

Figure 2-10
World Oil Production Grouping 2015

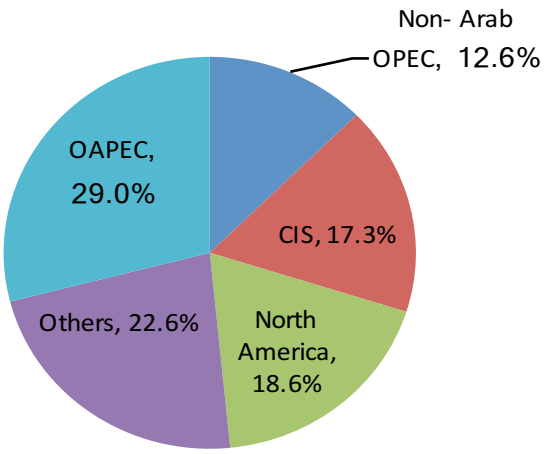
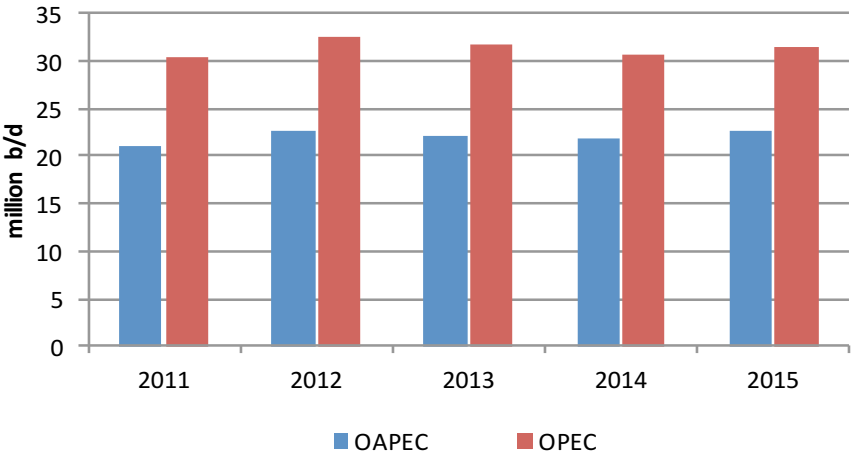


Figure 2-11
Oil Production in OAPEC and OPEC



The year 2015 witnessed the start of production in about 47 fields across 20 countries, including NASR field in the UAE, 130 km northwest Abu Dhabi. It's production is expected to reach 65 thousand b/d.

Details can be found in the table on the fields put on production in 2015 annexed to Chapter 2 tables of this report.

3-1-2 NGL and Condensates Production

The world's natural gas liquids and condensates production has increased by 9.3% from 8.67 million b/d in 2013 to 9.48 million b/d in 2014.

As for OAPEC member countries, NGL and condensates production has increased between 2013 and 2014 in the UAE (by 87.9% from 372 thousand b/d to 699 thousand b/d in 2014), Algeria (from 420 thousand b/d to 511 thousand b/d), KSA (from 1.09 million b/d to 1.1 million b/d), and Iraq (from 41 thousand b/d to 43 thousand b/d) during the same period. As for the remaining members, NGL and condensates output has dropped variably as shown in table 2-7.

As for non-members, NGL and condensates output has risen in Oman by 8% (from 88 thousand b/d in 2013 to 95 thousand b/d in 2014), while it dropped in Yemen by 85% from 20 thousand b/d in 2013 to about 3000 b/d only in 2014.

When considering combined oil, NGL and condensates output, the world's hydrocarbon liquids output is estimated at about 87.7 million b/d in 2015 against about 85.7 million b/d only in 2014.

3-2 Marketed Natural Gas

The marketed natural gas rates worldwide increased for the fifth consecutive year reaching 3566 billion cubic meters in 2014 compared to about 3438 billion cubic meters in 2013, representing an increase of 3.7%. Figure (2-12) shows the distribution of marketed natural gas according to international groups in 2014.

The volume of marketed natural gas in OAPEC members has dropped by 1.8% from 563 billion cubic meters in 2013 to 553 billion cubic meters in 2014. Estimates indicate that the volume of marketed natural gas has dropped in the UAE, Tunisia, Syria, Kuwait, Libya, and

Egypt. While marketed natural gas rates increased in Bahrain, Algeria, KSA, and Iraq as shown in Table 2-8. OAPEC members' total share of the world's marketed natural gas was 15.5% in 2014.

As for non-OAPEC countries, data show that marketed natural gas dropped in Oman by 0.4% from 29.95 billion cubic meters in 2013, to about 29.8 billion cubic meters in 2014. Arab countries' combined share of the world's marketed natural gas was about 20.4% in 2014.

Figure 2-12
World Marketed Gas in 2014

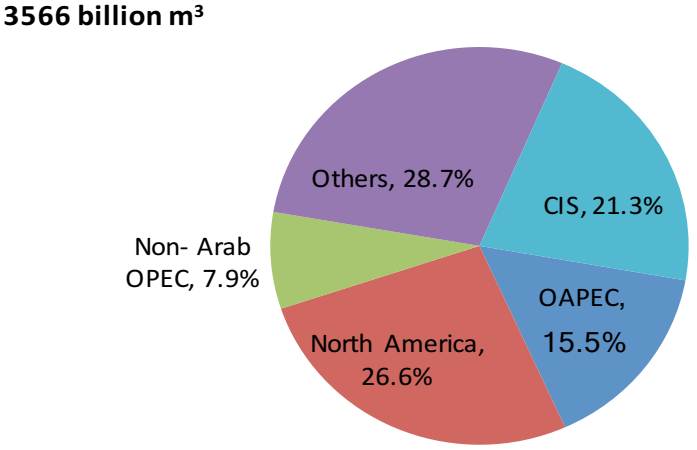
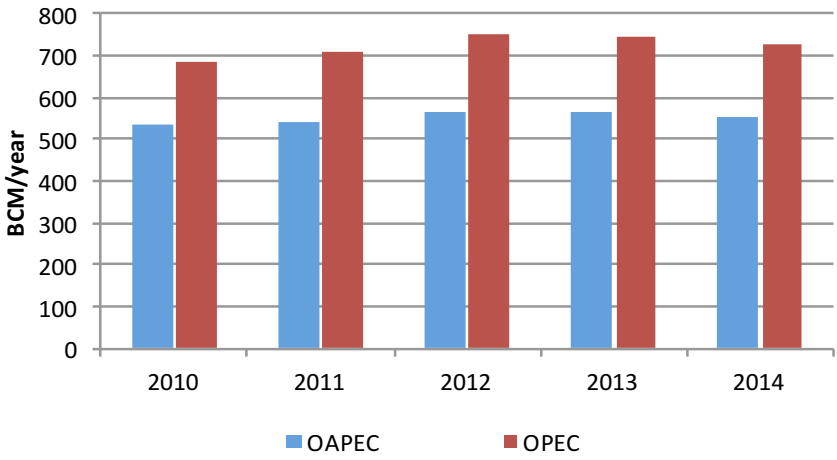


Figure (2-13) compares the volumes of marketed natural gas between OPEC and OAPEC member countries between 2010 and 2014. Estimates indicate a drop in OPEC contribution to the world's marketed natural gas volumes from 21.7% in 2013 to 20.4% in 2014.

Figure 2-13
Marketed Gas in OPEC and OAPEC



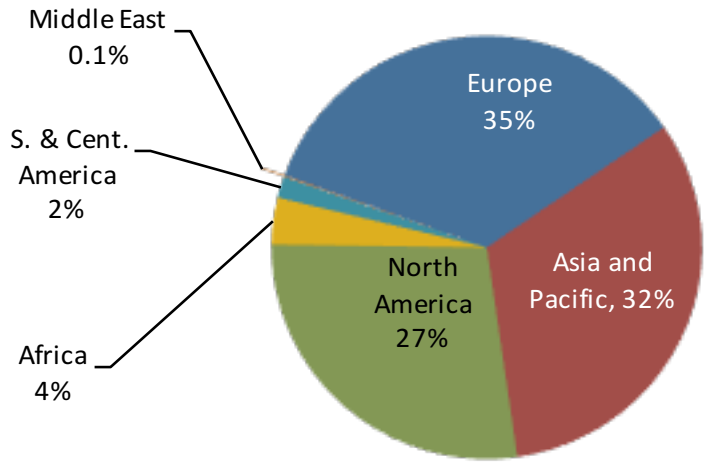
II. COAL

Coal is mainly used for power generation and industrial heating. In 2013, 68% of coal quantities have been used for this purpose. In general, coal plays an important role in the world's energy due to its low cost compared to other fuel types; its availability in a large number of countries around the world; in addition to being easy to transport, export, and import. The World Energy Council (WEC) estimates energy efficiency at coal-operated power plants at about 46% against about 61% for gas-operated plants.

1- Coal Reserves

No significant change has been noticed on the world's coal reserves in 2014 compared to 2013 (Table 2-9). The reserves remained at 891.5 billion tons, including 403 billion tons of lignite and 488 billion tons of anthracite distributed as shown in Figure 2-14.

Figure 2-14
World Coal Reserves, end-2014



Coal consumption represented 30% of the total world energy consumption in 2014: China alone consumed more than half of the world's coal consumption (50.6%). In general, Asia and the Pacific are considered the largest coal consumer in the world. Their consumption has increased to more than 71.5% of the world's total consumption in 2014 to reach about 2.78 billion tons of oil equivalent, representing an increase of 1.7% compared to last year.

The USA comes second with coal consumption of 453 million tons representing 11.7% of the world's total consumption in 2014.

In Arab countries, according to BP data, the UAE has consumed 2.13million tons of coal, Egypt (1 million tons), Algeria (225 thousand tons), and KSA (95 thousand tons of oil equivalent of coal (that is 137 thousand tons of coal).

It is worth noting that Egypt has signed an MOU with Saudi ACWA Power to build a coal-operated power generation plant with a capacity of 2000 megawatts that are expandable up to 4000 megawatts at a cost of about $7 billion.

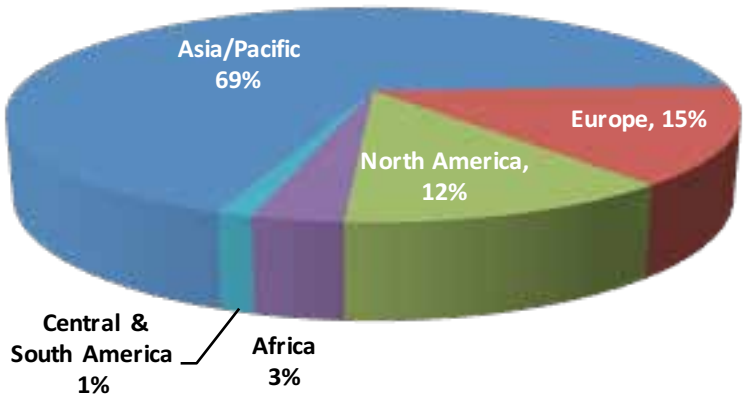
2- Coal Production

According to BP statistics, the world's coal production reached about 8.16 billion tons in 2014, 0.7% lower than 2013 output which reached about 8.23 billion tons (Table 2-10).

China continued to top coal production in spite of a drop in its output by 2.6% from 3974 million tons in 2013 to 3874 tons in 2014. Coal production dropped in the second half of 2014 in Ukraine due to the security crisis in East Ukraine. Production also dropped in Indonesia due to weak demand from China on the one hand, and imposing new import regulations on the other hand. Serbia's production dropped too following floods that drowned parts of coal mines in Kolubara during May 2014.

Figure (2-15) illustrates international groupings share in coal production in 2014. Asia/Pacific produced more than 5.6 billion tons, Europe followed with about 1.2 billion tons, then North America with about 0.99 billion tons. In the Middle East (not shown on the figure), production was too small and did not exceed its previous level of 1.5 million tons per annum.

Figure 2-15: Coal Production, by International Groups 2014



III. NUCLEAR ENERGY

1- Uranium reserves

In a report prepared by The International Atomic Energy Agency (IAEA) in collaboration with the Organisation for Economic Co-operation and Development (OECD) titled "Uranium 2014: resources, production, and demand," the IAEA estimated uranium sources production at a cost of less than $260/kg by about 7.6 million tons of uranium, up by more than 538 thousand tons of earlier estimations. This increase equals the world uranium demand for 8 years.

Australia has the largest number of defined uranium resources in the world, which represent about 29% of the sources at a production cost of less than $130/kg, and 24% of the world's defined resources at a cost of less than $260/kg. It is followed by Kazakhstan with 12% of the resources from both types.

On Arab countries' level, uranium exploration is still modest. Studies have shown the presence of uranium in Algeria, Egypt, Jordan, and Somalia, however, data on work in this field are very rare.

Recoverable uranium reserves in 2013 were estimated at 19500 tons priced for less than $260/kg in Algeria; 1900 tons in Egypt; 40 thousand tons in Jordan, and 7600 tons in Somalia.

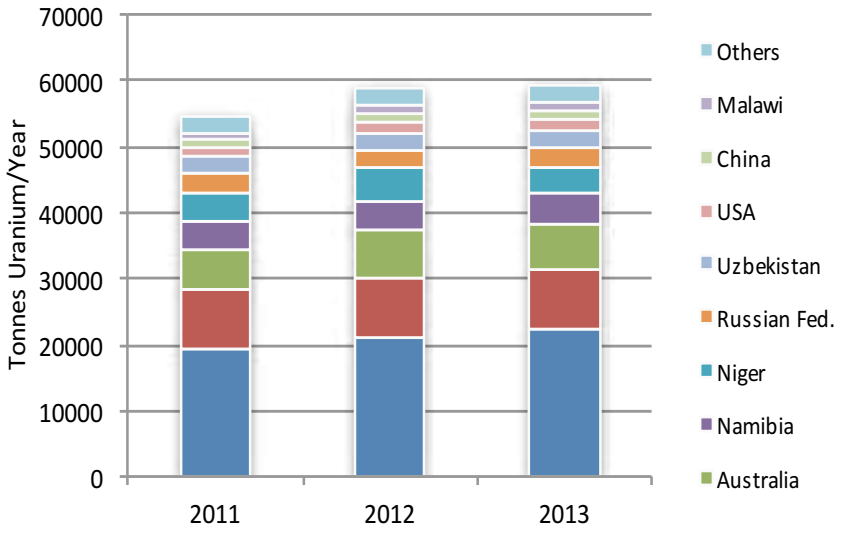
IAEA estimates on the Middle East indicate that Iran has about 1000 tons of recoverable uranium reserves priced at less than $260/kg, however, in September 2015, Iran's Islamic News Agency (IRNA) published a statement by Iran's Head of Nuclear Energy Authority that Iran had discovered a new uranium mine in the middle of the country and that it would start recovering it soon. The statement did not include any reference to quantities of the discovered uranium.

2- Uranium production

As for production, uranium has been produced by 21 countries during 2011-2013 as shown in (Table D). The world's total uranium output in

2012 has reached about 58816 tons, while the above- mentioned report estimated production at 59531 tons in 2013. (Figure H) shows total annual uranium production in the top 10 producing countries during 2011- 2013.

Figure E: World Uranium Production, 2011- 2013



Source: IAEA, OECD: Uranium 2014: resources, production, and demand.

Kazakhstan is the world's biggest uranium producer with 21240 tons in 2012 and 22500 tons in 2013. Canada and Australia came second and third with 9000 tons and 6700 tons respectively in 2013.

Table D Uranium Production 2011-2013

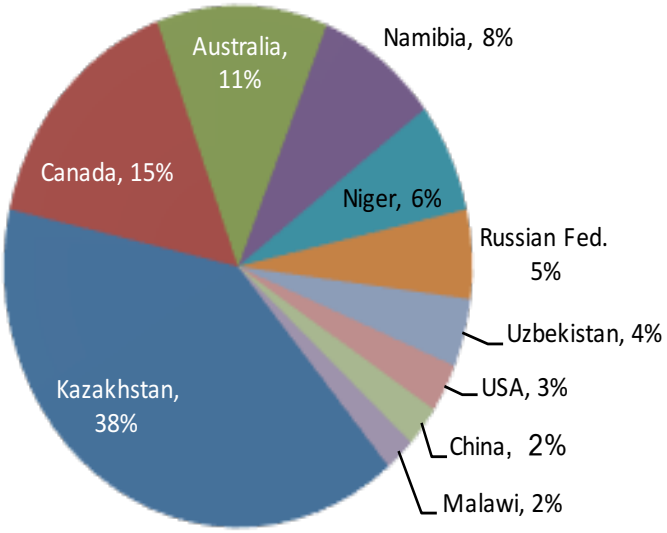
Tons

No.	Country	2011	2012	Tons
1	Kazakhstan	19450	21240	22500
2	Canada	9145	8998	9000
3	Australia	5967	7009	6700
4	Namibia	4078	4653	4820
5	Niger	4264	4822	3859
6	Russia	2993	2862	3133
7	Uzbekistan	2500	2400	2400
8	United State	1582	1667	1700
9	China	1400	1450	1450
10	Malawi	842	1103	1200
11	Ukraine	873	1012	1075
12	South Africa	556	467	540
13	India	400	385	400
14	Brazil	265	326	340
15	Czech Republic	229	228	213
16	Romania	80	80	80
17	Pakistan	45	45	45
18	Iran	12	15	40
19	Germany	51	50	30
20	France	6	3	3
21	Hungary	2	1	3
Total		54740	58816	59531

Source: IAEA, OECD: Uranium2014 resources, production, and demand.

(Figure O) explains top 10 uranium producing countries worldwide in 2013.

Figure F: Share of Top 10 Uranium Producers in 2013



Source: IAEA, OECD: Uranium2014 resources, production, and demand.

3- Nuclear reactors

The total number of operating nuclear reactors in the world has reached 438 in 2014, with total design capacity of 376.2 GW. They contributed in generating more than 2410 terawatts/hour as shown in Table (2-11).

During 2014, 5 nuclear reactors have been connected to power networks, one reactor was shut down, while the total number of reactors under construction reached 70 worldwide. In the Arab region, work has started in 3 new units including Baraka Nuclear Project in the UAE in September following the construction of Units 1 and 2 that started in August 2014 with a total design capacity of 4035 megawatts.

In **KSA**, King Abdullah City for Atomic and Renewable Energy and Korea's Nuclear Research Institute have signed cooperation contracts to establish "partnership in System-integrated Modular Advanced Reactor (SMART) and human capacity building." These contracts come as an integrated package in line with a bilateral agreement signed between KSA and Korea back in 2011 on developing and using nuclear energy for peaceful purposes. SMART is the latest 4G technology that has multi-applications in terms of electricity and thermal production for desalinating sea water. The technology is highly safe, and easy to manufacture, set up, and then connected to power networks. It is planned that the two sides will work on a preliminary study in 2018 to evaluate the economic feasibility of the project.

Within the framework of the cooperation agreement on nuclear energy for peaceful use signed between the Saudi and French governments in 2011, a letter of intent was signed by the Head of King Abdullah City for Atomic and Renewable Energy and the French Minister for Foreign Affairs and International Development in June 2015 to conduct a feasibility study for the Saudi side on the possibility of building two reactors with special specifications.

Egypt signed a cooperation agreement with Russia's Rosatom Corporation to construct and operate a nuclear plant in Dhaba'a equipped with 4 units with a designed capacity of 1200 megawatts each.

Tunisia also signed a MOU with Rosatom to explore the potentials of a nuclear programme there. Partners will work together to develop a nuclear infrastructure through applied studies to design and build research nuclear reactors in Tunisia.

IV. RENEWABLE ENERGY RESOURCES

Renewable energy resources play a secondary role in the world's energy supplies. Renewables are primary natural resources. They are always available but transforming most of them into electricity or kinetic energy still needs technical and environmental development to be economically feasible.

Renewable energy resources include: hydroelectricity, solar, wind, geothermal, biomass, as well as, oceans and tides energies. In recent years, renewables achievements around the world have been focused on testing the success of approved technologies in model projects, and the possibility of spreading them on a wider scale while studying their economic and environmental feasibility. OECD countries are seeking to replace conventional energy resources partially and gradually by renewables. Arab countries use of renewables is still limited to hydroelectricity, wind and solar energy.

1. Hydropower

Installed hydropower witnessed a distinguished growth in 2014. The world added about 36 GW to the previous total installed hydropower reaching more than 1036 GW. 1.46GW of pumping and storage were put on use. It is estimated that electricity generated worldwide from hydropower sources has reached 3900TW/H in 2014.

China has dominated growth in this field by adding 21.85GW to its hydropower. Other countries also excelled in this including: Brazil that added (3.31 GW), followed by Canada (1.72 GW), Turkey (1.35GW), Russia (1.22 GW), and India (1.2GW).

Norway announced constructing subsea power line with Britain like the one planned with Germany and the existing line with Denmark.

In East Africa, Kenya and Ethiopia are continuing work on a 1000km high voltage power line as part of a future action plan where hydropower exchange forms part of it.

2014 also witnessed connecting the world's largest hybrid solar-water plant to a power network as China's Longyangxia solar farm (320MW) has been connected to a hydropower plant with a capacity of 1280 MW. The project's operational life is expected to last for 25 years.

Costa Rica announced that it started generating its power from renewables for 75 days in 2015. Most of the generation came from hydropower sources. The Canary's El Hierro started constructing a hybrid wind- hydropower plant with a capacity of 11MW hoping that

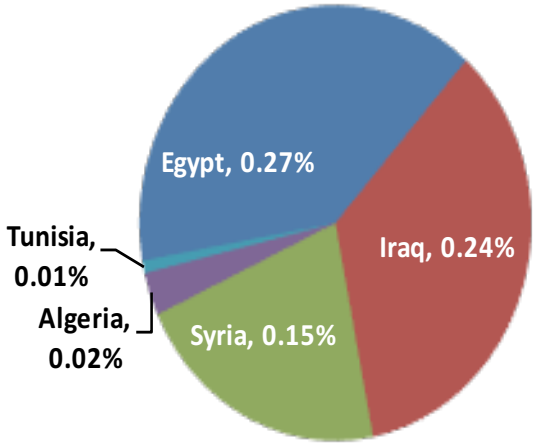
it would generate all of the Island's electricity needs from renewables. Europe is also planning to build pumping and storage capacity up to 8600MW.

In the Arab region, The European Bank for Reconstruction and Development (EBRD) granted a 35-million-Euros- loan to The National Bureau for Electricity and potable Water in Morocco to be used for the rehabilitation of 12 small and medium size hydropower plants, in addition to upgrading their safety facilities. Morocco hopes to generate 2000MW from hydropower sources by 2031.

In general, installed hydropower energy has reached 175604MW in North America, 147880MW in South America, 166113MW in Europe, 364017MW in Asia/Pacific, 155968MW in mid and south Asia, and 27028MW in Africa.

(Table 2-12) shows the percentage of installed hydropower in some Arab countries. (Figure Z) shows that OAPEC hydropower use is modest compared to the world's total use of this type of power.

Figure G: Share of Some OAPEC Members' Installed Hydropower Capacity to the World
1036.6 Terawatt

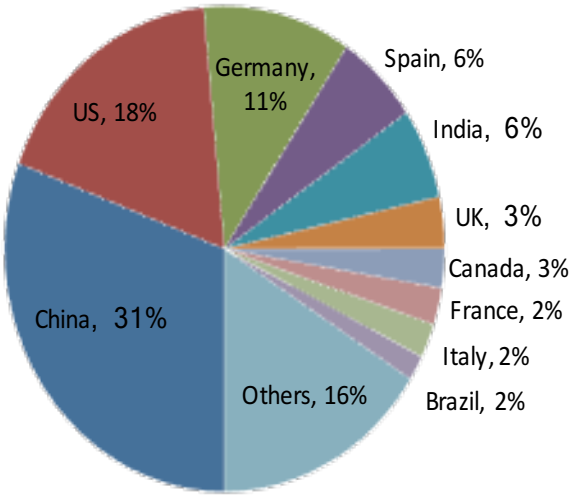


2. Wind Power

The growing demand for electricity in most parts of the world forms a challenge that needs solutions that differ according to each country's nature and climate, as well as, its resources reserves. Wind is considered one of the sources that could be used to face a part of this challenge.

The world's installed wind power has increased between 2013 and 2014 by more than 16% reaching 372961MW distributed across about 89 countries around the world (Table 2-13). 10 countries, led by China, USA, and Germany, in possession of 84% of this power as noted in Figure H.

Figure H: Top 10 Installed Wind Energy



Morocco tops Arab countries in terms of installed wind power, which increased from 495MW in 2013 to 795MW in 2014, representing an increase of 60.6%. it is followed by Egypt whose installed wind power increased by 9.5% from 634MW in 2013 to 694 in 2014, then Tunisia with 305MW in 2014 (same in 2013).

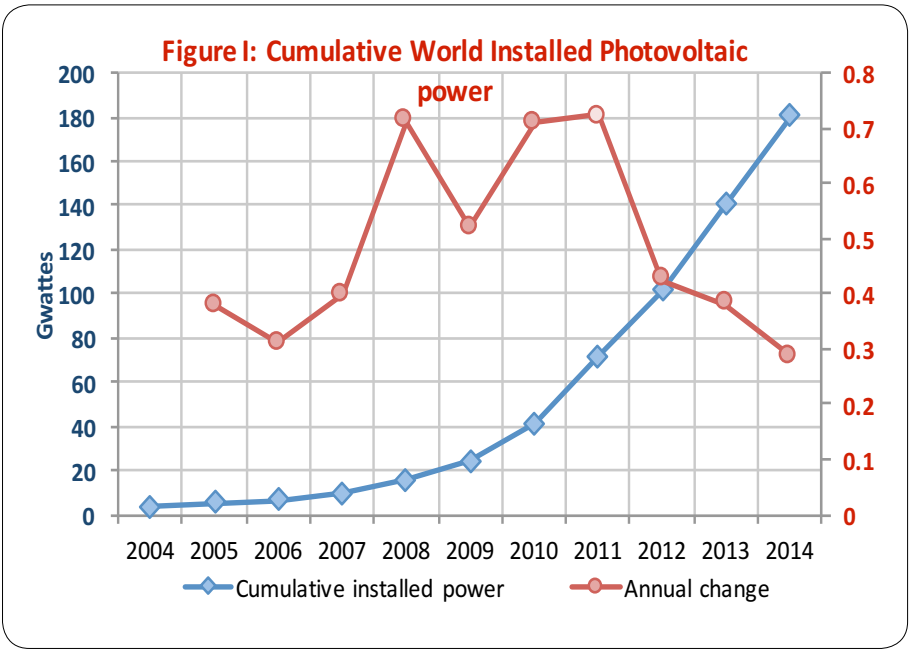
Saudi ARAMCO said in their annual report 2014 that they were studying the possibility of executing projects to generate 300MW of

electricity by using solar and wind powers in 10 remote sites in KSA. They are also planning to install wind turbines with a capacity of 3.3MW at petroleum products' store in Tareef as part of a project to reduce fuel use in such stores and to build operating capacities in preparation for installing additional wind turbines.

In **Egypt**, an MOU has been signed between Actis corporation, Mainstream Company, and Lekela Power to establish a joint venture with Egyptian Electricity Transmission Co. (EETC) to operate wind plant farm at Suez Gulf at a capacity of 250MW and a cost of about $350 million.

3. Solar Energy

The solar cell technology is the fastest growing renewable source. According to BP data, it can be noted that the annual growth rate of installed solar cell power has reached about 48% between 2004 and 2014. However, this growth rate has started to drop after 2011 as shown in Figure T.



Total installed photovoltaic capacity reached 180396MW worldwide in 2014. More than 83% of this power exists in 10 countries only: Germany, China, Italy, Japan, USA, France, Spain, Britain, Australia, and Belgium. The total installed capacity have increased by 28.7% between 2013 and 2014 as shown in Table 2-14. The world has consumed about 186TW/H of solar-generated electricity in 2014, representing an increase of 38.2% compared to 134.5TW/H in 2013.

2014 was an exceptional year for Chili where installed capacity rates have increased more than 122 times following the addition of 356MW from various projects throughout the year.

It is worth mentioning that the UAE Energy Minister said that the UAE will invest $35billion in nuclear, wind, and solar powers. Abu Dhabi Fund for Development has contributed with the International Renewable Energy Agency to providing $57 million as part of a long-term loan to fund renewable energy projects in some developing countries. This portion of the loan will contribute to funding projects with a capacity of 35MW in urban areas in Argentina, Cuba, Iran, Mauritania, Saint Vincent, and Grenadine.

In **KSA**, the Royal Commission for Jubail and King Abdullah City for Atomic and Renewable Energy signed a bilateral cooperation agreement in October 2015 to conduct a feasibility study on building and operating a solar energy plant in Industrial Yanbu' City with a capacity of 50MW.

In **Qatar**, France's Saft has been contracted to supply 40,000 advanced solar batteries to be installed in 755 industrial wellheads controlling systems in Dukhan field. The contract is worth about $10 million.

In **Egypt**, the Egyptian Electricity and Renewable Energy Ministry has signed a number of agreements (including Memorandums of Understanding (MoU)) during the Egyptian Economic Cooperation Conference in Sharm El Sheikh in March 2015 with the UAE's Masdar and KSA's Acwa Power Consortium to build solar plants in various sites in Egypt with a total capacity of 1500MW. This is in addition to building a 500 Megawatts wind plant at a cost of about $2.4billion. In general,

Egypt's power generation expansion plan between 2014 and 2015 included wind plants at a capacity of 850MW, and small 30MW water power generation plants, which constitutes 37% of the total scheduled power generation from new projects. The 2015-2016 expansion plan included projects to generate 1100MW using wind energy, 120MW using solar energy (20MW of solar cells and 100MW of solar thermal energy). The 2016-2017 expansion plan included projects to generate 540MW by wind energy and 20MW by solar cells.

4. Geothermal Energy

The total installed geothermal capacity worldwide in 2014 was 12594MW in 24 countries. It represents an increase of about 5.7% compared to 11917MW 2013. 93% of the world's total installed geothermal capacity is found 10 countries; they are: USA, the Philippines, Indonesia, New Zealand, Italy, Mexico, Iceland, Kenya, Japan, and Turkey, as shown in Table 2-5. It was noted in 2014 that Kenya has increased its total installed geothermal capacity by (133%), followed by Turkey (63%), and Germany (59%). It is worth mentioning that Kenya's geothermal capacity represents about 27% of its energy mix.

5. Biomass Power

Non-OECD countries are considered the main users of the biomass power in the world. In 2013, 85.7% of biomass energy has been produced and consumed in these countries, especially in developing countries in South Asia and Africa. This type of energy has been used mainly for non-commercial purposes especially cooking and heating. Table 2-16 shows the total installed biomass energy in some of the world's countries between 2012 and 2013.

The world's consumption of geothermal and solid biomass powers has reached 508.5TW/H in 2014 against 475.4TW/H in 2013.

2015

The Secretary General's 42nd Annual Report

TABLES

CHAPTER TWO

Table 2-1

Seismic Surveys Worldwide, 2011 - 2015
(Crew /Month)

	2011	2012	2013	2014	2015*
Africa	60	54	56	52	48
Asia/Pacefic	68	67	122	115	115
Canada	14	13	8	12	5
Europe	35	39	35	29	20
Latin America	37	34	32	21	18
Middle East	35	33	21	23	25
Russia/CIS	47	46	219	217	197
USA	67	69	72	62	60
World Total	**363**	**355**	**565**	**531**	**488**

Source:

* Society of Exploration Geophysicists
Available data of 2015 are Average 5 months (Jan. to Jun.) 2015

Table 2-2

Average Number of Active Rigs Worldwide, 2011-2015
(Rig)

	2011	2012	2013	2014	2015*
Africa	78	96	125	134	109
Asia/Pacefic	256	241	246	254	223
Canada	423	365	355	380	198
Europe	118	119	135	145	118
Latin America	424	423	419	400	327
Middle East	292	356	372	407	403
USA	1875	1919	1761	1860	1026
World Total	**3466**	**3519**	**3413**	**3580**	**2404**

Source:
*Baker Hughes, Jan. - Oct. 2015.

Table 2-3

Petroleum Discoveries in OAPEC Members and Other Arab Countries, 2011- 2015

Country	2011		2012		2013		2014		2015*	
	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas
Algeria	10	10	8	23	12	20	15	17	-	1
Bahrain	-	-	-	-	-	-	-	-	-	-
Egypt	57	21	57	29	41	14	34	23	2	3
Iraq	2	1	6	1	5	-	6		-	-
KSA	1	-	1	2	-	-	3	5	-	-
Kuwait	2	2	8	-	4	-	7	-	4	-
Lybia	-	-	4	1	4	3	-	1	-	3
Qatar	-	-	-	-	-	1	-	-	-	-
Syria	3	1	1	-	-	-	-	-	-	-
Tunisia	4	1	2	-	-	-	1	-	3	-
UAE	-	-	-	-	-	-	-	1	-	-
OAPEC	**79**	**36**	**87**	**56**	**66**	**38**	**66**	**47**	**9**	**7**
Morocco	-	-	-	-	-	-	-	-	-	2
Morocco	-	3	-	-	-	-	١	1	-	4
Oman	1	-	-	-	1	-	1	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-
Yemen	-	2	-	-	1	-	-	-	-	
Total Arab	**80**	**41**	**87**	**56**	**68**	**38**	**68**	**48**	**9**	**13**

* Estimates

Table 2-4

Arab and World Oil Reserves, 2011- 2015
(Billion barrels at year end)

	2011	2012	2013	2014	2015*	Change 2014/2015 (%)
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	4.20	4.20	4.40	4.40	0.0
Iraq	141.40	145.30	145.30	143.07	143.07	0.0
Kuwait	101.50	101.50	101.50	101.50	101.50	0.0
Libya	48.00	48.50	48.40	48.42	48.42	0.0
Qatar	25.26	25.24	25.24	25.24	25.24	0.0
Saudi Arabia	265.40	265.9	265.85	266.58	266.58	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**
Total OAPEC	698.91	703.68	703.53	702.26	702.26	0.0
Oman	5.50	5.50	5.50	5.50	5.50	0.0
Sudan	5.00	1.50	1.50	1.50	1.50	0.0
Yemen	**2.67**	**2.67**	**2.67**	**2.67**	**2.67**	**0.0**
Total Arab Countries	**712.08**	**713.35**	**713.20**	**711.93**	**711.93**	**0.0**
Angola	9.06	9.06	9.01	8.42	8.42	0.0
Iran	154.58	157.30	157.80	157.53	157.53	0.0
Venezuela	99.40	99.40	99.40	100.00	100.00	0.0
Nigeria	37.20	37.14	37.14	37.07	37.07	0.0
Ecuador	8.24	8.24	8.24	8.23	8.23	0.0
Total Non-Arab OPEC	**308.47**	**311.13**	**311.59**	**311.26**	**311.26**	**0.0**
Total OPEC	**1000.03**	**1007.56**	**1007.87**	**1006.07**	**1006.07**	**0.0**

Cont.

Table 2-4 Cont.

	2011	2012	2013	2014	2015*	Change 2014/2015 (%)
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- Parenthesis denote negative figures
B- Reserves of KSA and Kuwait include their share of the divided zone
C- World reserves exclude extra heavy and bitumen in Venezuela
D- World resaves exclude Cana›s unconventional like tar sands
E- USA Reserves include shale oil

Source:
- BP Statistical Review of World Energy, June 2015 .
- Oil & Gas Journal, 1 Jan. 2016.
- OPEC Annual Statistical Bulletin, 2015.

Table 2-5

Arab and World Natural Gas Reserves, 2011- 2015
(Billion cubic meters at year end)

	2011	2012	2013	2014	2015*	Change 2014/2015 (%)
Algeria	4504	4504	4505	4505	4505	0.0
Bahrain	92	92	92	92	92	0.0
Egypt	2045	2186	2186	2186	2186	0.0
Iraq	3158	3694	3694	3694	3694	0.0
Kuwait	1784	1784	1784	1784	1784	0.0
Libya	1547	1532	1532	1532	1532	0.0
Qatar	25030	24400	24400	24400	24400	0.0
Saudi Arabia	8150	8234	8234	8316.0	8488.5	2.1
Syria	285	285	285	285	285	0.0
Tunisia	65	65	65	65.0	65.0	0.0
UAE	6091	6091	6091	6091	6091	0.0
Total OAPEC	**52751**	**52867**	**52868**	**52950**	**53123**	**0.3**
Oman	705.0	705.0	705.0	705.0	705.0	0.0
Sudan	85	85.0	85	85.0	85.0	0.0
Yemen	479	479.0	479	479	479	0.0
Total Arab countries	**54020**	**54136**	**54137**	**54219**	**54392**	**0.3**
Angola	275	275	275	275	308.0	12.0
Ecuador	8	6	6	6	10.99	83.2
Iran	33090	33780	33780	34020	34020	0.0
Nigeria	5154	5118	5118	5111.0	5111.0	0.0
Venezuela	5525	5563	5562	5581.0	5616.9	0.6
Total Non-Arab OPEC	**44052**	**44742**	**44741**	**44993**	**45067**	**0.2**
Total OPEC	**94316**	**94981**	**94981**	**95315**	**95561**	**0.3**

Cont./

Table 2-5 Cont.

	2011	2012	2013	2014	2015*	Change 2014/2015 (%)
Brazil	417	396	389	476	471.1	(1.0)
Canada	1727	1930	1889	2033.0	1995.8	(1.8)
Mexico	490	488	484	468.6	433.0	(7.6)
Norway	2007	2070	2049	2049.0	1922.0	(6.2)
UK	253	246	241	240.8	205.4	(14.7)
USA	7717	9877	8723	9578.6	10440.5	9.0
CIS	61301	61675	61675	61675.0	61675.0	0.0
Of which: Azerbaijan	850	991	991	991	991.0	0.0
Kazakhstan	2407	2407	2407	2407	2407	0.0
Russian Fed.	**47573**	**47806**	**47806**	**47806**	**47806**	**0.0**
Turkmenistan	7504	7504	7504	7504	7504	0.0
Uzbekistan	1841	1841	1841	1841	1841	0.0
China	3036	4006	4406	4642.8	4945.1	6.5
Rest of the world	15777	15297	17850.6	15501.2	15200.3	(1.9)
World Total	190797	194862	196585	195877	196747	0.4
OAPEC/ world (%)	1.7	1.9	1.9	1.9	27.0	
Arab countries/ world (%)	4.3	4.2	4.2	4.2	27.6	
OPEC/ world (%)	49.4	48.7	48.3	48.7	48.6	
	0.0	0.0	0.0	0.0	0.0	

*Estimates

Note:
-Parentheses denote negative figures.

Source:
- Oil & Gas Journal, 1 Jan. 2016.
- OPEC Annual Statistical Bulletin, 2015.

Table 2-6

Arab and World Hydrocarbon Liquids Production, 2011- 2015
Thousand b/d
First: Oil Production

	2011	2012	2013	2014	2015*	(%) Change 2014/2015
Algeria	1262.0	1203.0	1203.0	1193.0	1148.0	(3.8)
Bahrain#	190.0	173.0	197.0	202.0	200.9	(0.5)
Egypt+	566.0	571.5	579.6	593.4	684.8	15.4
Iraq	2653.0	2942.0	2980.0	3110.0	3481.0	11.9
Kuwait	2658.7	2977.6	2921.6	2866.8	2842.0	(0.9)
Libya	589.5	1454.0	993.3	480.0	412.0	(14.2)
Qatar	734.0	736.0	724.0	709.0	664.0	(6.3)
Saudi Arabia	9311.0	9763.4	9640.0	9701.0	10191.0	5.1
Syria^	330.0	170.0	31.0	10.0	9.7	(3.1)
Tunis+	70.0	66.8	62.7	54.2	49.7	(8.3)
UAE	2564.0	2652.5	2797.0	2794.0	2971.0	6.3
Total OAPEC	**20928.2**	**22709.8**	**22129.2**	**21713.4**	**22654.1**	**4.3**
Oman**	780.2	813.2	841.0	857.0	882.0	2.9
Sudan	453.0	99.7	117.8	122.0	120.0	(1.6)
Yemen	190.0	180.1	158.8	140.4	24.0	(82.9)
Total Arab Countries	**22351.4**	**23802.8**	**23246.8**	**22832.8**	**23680.1**	**3.7**
Angola	1618.0	1704.0	1701.2	1652.0	1767.0	7.0
Ecuador	500.3	503.6	526.4	557.0	544.0	(2.3)
Iran	3576.0	3739.8	3575.0	3121.0	3108.0	(0.4)
Nigeria	1974.8	1954.1	1753.0	1807.0	1721.0	(4.8)
Venezuela	2880.9	2803.9	2789.0	2683.0	2652.0	(1.2)
Total Non-Arab OPEC	**10550.0**	**10705.4**	**10344.6**	**9820.0**	**9792.0**	**(0.3)**
Total OPEC	**27568.7**	**28564.2**	**27906.9**	**27464.0**	**28177.4**	**2.6**

Cont./

Table 2-6 Cont.

	2011	2012	2013	2014	2015*	(%) Change 2014/2015
Brazil	2094.0	2017.5	2029.0	2224.5	2441.3	9.7
Canada	2082.8	2339.5	2504.2	2777.8	2835.3	2.1
Mexico	2561.3	2553.9	2531.5	2434.2	2268.5	(6.8)
Norway	1739.4	1604.5	1517.0	1524.0	1577.1	3.5
UK	993.6	869.0	798.0	768.0	860.0	12.0
USA	5642.5	6504.2	7449.5	8467.4	9367.5	10.6
CIS	13264.5	12792.0	13315.0	13400.0	13477.0	0.6
Of which: Azerbaijan	931.0	861.3	815.0	792.9	795.7	0.4
Kazakhstan	1600.0	1559.5	1398.5	1361.4	1367.0	0.4
Russia Federation	10325.0	9935.0	10047.3	10087.1	10116.7	0.3
Turkmenistan	220.0	215.4	229.0	235.0	255.0	8.5
Uzbekistan	86.0	70.0	68.0	72.0	66.0	(8.3)
China	4090.2	4228.1	4175.0	4201.0	4287.6	2.1
Rest of the World	7136.9	6156.8	7029.0	7741.3	7419.6	(4.2)
World Total	72506.6	73556.0	74939.6	76191.0	78006.0	2.4
OAPEC/world (%)	**28.9**	**30.9**	**29.5**	**28.5**	**29**	
Arab Countries/World (%)	**30.8**	**32.4**	**31.0**	**30.0**	**30.4**	
OPEC/World (%)	**38.0**	**38.8**	**37.2**	**36.0**	**36.1**	
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**		

*Estiamtes

Notes:
A- Parentheses denote negative figures.
B- Saudi and Kuwait production includes their share of the divided zone.
C- Arab countries data for 2014 (Excl. Tunisia, KSA and Qatar): Annual Statistical Bulletin, Data Bank, OAPEC
D- OPEC members› data are 11 months average (Jan. – Nov. 2015) according to OPEC monthly bulletins
#Bahrain: Average Bahrain oil field production (Jan.- Oct. 2015) as per JODI+ the share of Abu Sa›afah joint oil field with Saudi Arabia (about150K bpd according to latest available data).
^Syria figures are up to Q3 of 2015, and available on the official website of the Ministry of Oil and Mineral Resources at: http://mopmr.gov.sy/index.php/localnews/567-meetings26-10-2015.html
+Tunisia figures are average 10 months (Jan. - Oct. 2015) as per JODI.
+Egypt figures are average 9 months (Jan - Sept. 2019) as per JODI.
**Oman: Average first 10 months, Oman monthly statistical bulletin,

Other Sources:
Oil & Gas Journal, 1 Jan. 2016
OPEC Annual Statistical Bulletin 2015
JODI Data Initiative.

Table 2-7

NGL Production in OAPEC Members and Other Arab Countries, 2010-2014
(Thousand b/d)

	2010	2011	2012	2013	2014*	Change 2013-2014 (%)
Algeria	514	486	449	420	511	21.7
Bahrain	10	11	10	10	10	0.0
Egypt	159	109	96	181	170	(5.9)
Iraq	44	44	45	41	43	4.9
Kuwait	126	137	152	147	144	(1.8)
Libya	70	19	83	54	51	(6.2)
Qatar	835	1001	1066	1071	1049	(2.0)
Saudi Arabia	962	1009	1093	1093	1100	0.6
Syria	10	10	5	1	0	(68.1)
Tunis	4	3	3	4	3	(32.5)
UAE	270	400	358	372	699	87.9
Total OAPEC	**3004**	**3229**	**3360**	**3393**	**3780**	**11.4**
Oman**	106	106	97	88.0	95.0	8.0
Yeman	20	20	20	20.0	3.0	(85.0)
Total Arab Countries	**3130**	**3354**	**3477**	**3501**	**3878**	**10.8**
World Total	**8593**	**8938**	**8568**	**8668**	**9478**	**9.3**
OAPEC/World (%)	**35.0**	**36.1**	**39.2**	**39.1**	**39.9**	

Parentheses denote negative figures.
* Estimates
** Oman: Average 10 months (Jan.- Oct. 2015) : based on monthly statistical bulletin of the Ministry of National Economy
Sources:
Figures of 2014 for UAE, Bahrain, Algeria, Iraq, Kuwait, Libya and Egypt: Annual Statistical Bulliten, Data Bank, OAPEC. Others are estimates.
Oil & Energy Trends, Annual Statistical Review, 2015.

Table 2-8

Arab and World Marketed Natural Gas, 2010- 2014 (Million cubic meters/year)

	2010	2011	2012	2013	2014*	Change 2013-2014 %
Algeria	83.8	82.6	85.7	81.5	81.7	0.2
Bahrain	13.2	12.7	13.8	14.7	15.4	4.8
Egypt	61.6	61.3	58.8	56.4	48.8	(13.5)
Iraq	8.1	8.0	7.6	8.6	9	4.7
Kuwait	11.7	11.9	14.3	16.3	15	(8.0)
Libya	23.4	7.9	18.1	18.3	15.8	(13.7)
Qatar	182.4	202.5	204.0	204.6	204.6	0.0
Saudi Arabia	87.7	92.3	99.3	100.0	102.4	2.4
Syria#	8.9	7.9	5.8	5.3	3.7	(29.4)
Tunisia	2.0	1.9	1.9	2.8	2.6	(6.8)
UAE	51.3	52.3	54.3	54.6	54.2	(0.7)
Total OAPEC	**534**	**541**	**564**	**563**	**553**	**(1.8)**
Oman**	25.8	26.9	28.7	29.95	29.8	(0.4)
Total Arab Countries	**559.9**	**568.3**	**592.3**	**593.1**	**583.1**	**(1.7)**
Angola	0.7	0.8	0.8	0.93	0.732	(20.8)
Ecuador	0.3	0.2	1	0.515	0.578	12.2
Iran	187	188.8	202	199.293	212.796	6.8
Nigeria	28	41.3	43	38.4	43.842	14.1
Venezuela	20	20.8	23	21.82	21.878	0.3
Total Non-Arab OPEC	**236**	**252**	**269**	**261**	**280**	**7.2**
Total OPEC	**621**	**659**	**688**	**680**	**699**	**2.8**

Cont.

Table 2-8 Cont.

	2010	2011	2012	2013	2014*	Change 2013-2014 %
Canada	159.9	159.7	156	156.1	162	3.8
Mexico	57.6	58.3	56.9	58.2	58.1	(0.2)
Norway	107.7	101.7	114.7	108.7	108.8	0.1
UK	59.7	47.6	59.7	36.5	36.6	0.3
USA	603.6	648.5	681.2	687.6	728.3	5.9
CIS	741.9	776.5	764.3	776.5	760.3	(2.1)
Of which: Azerbaijan	15.1	14.8	15.6	16.2	16.9	4.3
Kazakhstan	17.6	19.3	18.4	18.5	19.3	4.3
Russian Fed.	588.9	607	592.3	604.8	578.7	(4.3)
Turkmenistan	42.4	59.5	62.3	62.3	69.3	11.2
Uzbekistan	59.6	57	56.9	56.9	57.3	0.7
China	94.8	102.7	107.2	117.1	134.5	14.9
Rest of the world	674	665	665	643	714	11.0
World Total	**3,295**	**3,380**	**3,466**	**3,438**	**3,566**	**3.7**
OAPEC/ world (%)	**16.2**	**16.0**	**16.3**	**16.4**	**15.5**	
Arab countries/ world (%)	**17.0**	**16.8**	**17.1**	**17.3**	**16.4**	
OPEC/ world (%)	**18.8**	**19.5**	**19.8**	**19.8**	**19.6**	

Notes:
- Parentheses denote negative figures.
*Estimates
Arab countries figures based on: Annual Statistical Bulliten, Data Bank, OAPEC, excluding Syria and Oman.
#Syria›s figures are up to Q3 of 2015 as per official data available on the website of the Syrian Ministry of Oil and Mineral Resources:
http://mopmr.gov.sy/index.php/localnews/567-meetings26-10-2015.html
**Oman: 11 month Average, based on monthly statistical bulletin of the Ministry of National Economy
Other Sources:
OPEC Annual Statistical Bulletin 2015.
BP statistical review of world energy full report 2015.

Table 2-9

World Coal Reserves 2010- 2014
(Billion tons at year end)

	2010	2011	2012	2013	2014
North America	**243.9**	**245.1**	**245.1**	**245.1**	**245.1**
Canada	6.6	6.6	6.6	6.6	6.6
USA	237.3	237.3	237.3	237.3	237.3
Central & South America*	**13.7**	**12.5**	**12.5**	**14.6**	**14.6**
Of which: Brazil	4.6	4.6	4.6	6.6	6.6
Colombia	6.7	6.7	6.7	6.7	6.7
Europe	**304.6**	**304.6**	**304.6**	**310.5**	**310.5**
Of which: FSU	224.5	228	228	228	228
Asia/Oceania	**265.8**	**265.8**	**265.8**	**288.3**	**288.3**
Of which: Australia	76.4	76.4	76.4	76.4	76.4
Indonesia	5.5	5.5	5.5	28	28
China	114.5	114.5	114.5	114.5	114.5
India	60.6	60.6	60.6	60.6	60.6
Africa	**31.7**	**31.7**	**31.7**	**31.8**	**31.8**
Of which: South Africa	30.2	30.2	30.2	30.2	30.2
Middle East	**1.2**	**1.2**	**1.2**	**1.1**	**1.1**
World total	**860.9**	**860.9**	**860.9**	**860.9**	**891.5**

Source:
- BP Statistical Review of World Energy, June 2011- June 2015 .

Table 2-10

World Coal Production, 2010-2014
(Million tons/year)

	2010	2011	2012	2013	2014
North America	**1066.6**	**1080.3**	**1004.7**	**977.3**	**989.5**
Canda	68.0	67.5	67.6	68.7	68.8
Mexico	14.9	19.0	14.9	15.2	13.8
USA	983.7	993.9	922.1	893.4	906.9
Central & South America*	**83.0**	**94**	**97.7**	**99.1**	**103.1**
Of which: Brazil	5.4	5.5	6.6	8.6	8.6
Colombia	74.4	85.8	89	85.5	88.6
Europe	**1208.9**	**1272.6**	**1292.6**	**1244.5**	**1196.5**
Of which: Germany	182.6	188.6	196.5	190.3	185.8
Russia	322.8	335.9	358.3	355.2	357.6
Asia/Oceania	**4853.7**	**5262.9**	**5527.8**	**5643.8**	**5606.5**
Of which: Australia	433.4	420.8	444.9	470.8	491.5
China	3428.0	3764	3945	3974.0	38740.0
India	573.8	570.1	606.5	605.1	644.0
Africa	**259.2**	**257.2**	**262.8**	**264.4**	**267.8**
Of which: South Africa	254.5	251.6	258.6	256.4	260.5
Middle East	**1.5**	**1.6**	**1.5**	**1.5**	**1.5**
World total	**7472.9**	**7968.6**	**8187.1**	**8230.6**	**8164.9**

Source:
- BP Statistical Review of World Energy, June 2015 .

Table 2-11

Nuclear Power Reactors in Operation and Under Construction (End of 2014)

Country	Reactors in Operation		Reactors Under Construction		Electricity Supplied by Nuclear Reactors 2014	
	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units
UAE			3	4035	-	-
Argentina	3	1627	1	25	5.3	4.1
Armenia	1	375			2.3	30.7
Spain	7	7121			54.9	20.4
Germany	9	12074	-	-	91.8	15.8
Ukraine	15	13107	2	1900	83.1	49.4
Iran	1	915	-	-	3.7	1.5
Pakistan	3	690	2	630	4.6	4.3
Brazil	2	1884	1	1245	14.5	2.9
Belgium	7	5927	-	-	32.1	47.5
Bulgaria	2	1926			15.0	31.8
Taiwan	6	5032	2	2600	40.8	18.9
Czech Republic	6	3904	-	-	28.6	35.8
Slovak Republic	4	1814	2	880	14.4	56.8
South Africa	2	1860	-	-	14.8	6.2
Belarus	-	-	2	2218	-	-
Russian Federation	34	24654	9	7371	169.1	18.6
Romania	2	1300			10.8	18.5
Slovenia	1	688	-	-	6.1	37.3

Cont./

Table 2-11 Cont.

Country	Reactors in Operation		Reactors Under Construction		Electricity Supplied by Nuclear Reactors 2014	
	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units
Sweden	10	9470	-	-	62.3	41.5
Switzerland	5	3333	-	-	26.5	37.9
China	23	19007	26	25756	123.8	2.4
France	58	63130	1	1630	418.0	76.9
Finland	4	2752	1	1600	22.6	34.7
Canada	19	13500	-	-	98.6	16.8
South Korea	23	20717	5	6370	149.2	30.4
Mexico	2	1330	-	-	9.3	5.6
UK	16	9373	-	-	57.9	17.2
India	21	5308	6	3907	33.2	3.5
Hungary	4	1889	-	-	14.8	53.6
Netherlands	1	482	-	-	3.9	4.0
USA	99	98639	5	5633	798.6	19.5
Japan	48	42388	2	2650	0.0	0.0
World Total	**438**	**376216**	**70**	**68450**	**2411**	

Sources:
IAEA, Nuclear Power Reactors in the World, 2015 Edition

Table 2-12

Installed Hydro Power Capacities in Arab Countries 2014

Installed Capacity (Megawatt-MWe)	
Country	**2011**
Algeria	228
Egypt	2800
Iraq	2513
Syria	1505
Tunisia	66
OAPEC	**7112**
Jordan	12
Lebanon	221
Morocco	1306
Sudan	2250
Arab Countries	**10901**
Others	1025709
World total	**1036610**
OAPEC/Word	**0.69%**
Arab/World	**1.05%**

Source:
International Hydropower Association, Hydropower Status Report 2015

Table 2-13

Installed Wind Power Capacities in the Wolrd 2013 -2014

Country	Installed Capacity (MWe)		Annual Growth Rate 2013/2014 (%)
	2013	2014	
China	91413	114609	25.4
USA	61292	66146	7.9
Germany	34700	40500	16.7
Spain	22898	22987	0.4
India	20150	22465	11.5
UK	11209	12809	14.3
Canada	7813	9684	23.9
France	8207	9143	11.4
Italy	8448	8556	1.3
Brazil	3445	6228	80.8
Sweden	4474	5524	23.5
Denmark	4747	4778	0.7
Portugal	4557	4683	2.8
Australia	3489	4056	16.3
Poland	3441	3885	12.9
Turkey	2760	3762	36.3
Romania	2608	2962	13.6
Netherlands	2714	2876	6.0
Japan	2722	2840	4.3
Mexico	1988	2510	26.3
Ireland	2100	2322	10.6
Austria	1661	2072	24.7
Greece	1865	1980	6.2
Belgium	1720	1960	14.0
Norway	793	841	6.1
Morocco	495	795	60.6
Egypt	634	694	9.5
Bulgaria	650	660	1.5
Taiwan	614	633	3.1
Finland	428	611	42.8
New Zealand	603	603	0.0
South Africa	10	570	5600.0
South Korea	506	553	9.3
Hungary	357	357	0.0
Tunisia	305	305	0.0
Costa Rica	249	299	20.1
Argentina	242	295	21.9
Pakistan	106	256	141.5
Thailand	223	223	0.0
Philippines	66	216	227.3
Iran	131	131	0.0
Others	4111	5582	35.8
Total World	**320944**	**372961**	**16.2**

Source
BP Statistical Review of World Energy, Renewable Energy 2015 .

Table 2-14

Cumulative Installed Photovoltaic Power Capacities in some Countries, 2013- 2014

Country	Cumulative Installed Capacity Megawatt-Mwe)		Annual Growth Rate 2013/2014 (%)
	2013	2014	
Germany	36300	38200	5.2
China	17639	28199	59.9
Japan	13599	23300	71.3
Italy	18074	18460	2.1
USA	12079	18280	51.3
France	4733	5660	19.6
Spain	5333	5358	0.5
UK	2780	5228	88.1
Australia	3226	4136	28.2
Belgium	3009	3074	2.2
Greece	2579	2595	0.6
India	1475	2384	61.6
chez republic	2132	2134	0.1
Canada	1211	1710	41.2
Thailand	824	1299	57.6
Romania	1022	1293	26.5
Netherlands	737	1098	49.0
Switzerland	756	1076	42.3
Bulgaria	1020	1022	0.2
South Africa	122	966	691.8
Taiwan	376	776	106.4
Austria	626	766	22.4
India	481	731	52.0
Denmark	563	603	7.1
Slovakia	588	590	0.3
Portugal	281	391	39.1
Chilly	3	368	12166.7
Mexico	112	176	57.1
Malaysia	73	160	119.2
Sweden	43	79	83.7
Turkey	18	58	222.2
Norway	11	13	18.2
Finland	10	10	0.0
Others	**5459**	**6488**	**18.8**
Total World	**140150**	**180396**	**28.7**

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, 2013-2014

	Installed Capacity (Megawatt-MWe)		Annual Growth Rate 2013/2014 (%)
	2013	2014	
USA	3524	3525	0.03
Philippines	1868	1917	2.6
Indonesia	1339	1401	4.6
New Zealand	971	971	0.0
Italy	876	916	4.6
Mexico	834	834	0.0
Iceland	665	665	0.0
Kenya	253	590	133.2
Japan	503	539	7.2
Turkey	226	368	62.8
Costa Rica	208	208	0.0
El Salvador	204	204	0.0
Nicaragua	160	160	0.0
Russia	82	82	0.0
Papua New Guinea	56	56	0.0
Guatemala	48	48	0.0
Portugal	29	29	0.0
China	27	27	0.0
Germany	17	27	58.8
France	17	17	0.0
Ethiopia	7	7	0.0
Australia	2	2	0.0
Austria	1	1	0.0
Thailand	0.05	0.05	0.0
Total World	**11917**	**12594**	**5.7**

Source:
BP Statistical Review of World Energy, Renewable Energy 2015 .

Table 2-16

Solid Biomass Installed Capacities in some Countries, 2011 -2012

	Installed Capacity (Megawatt-MWe)		Annual Growth Rate 2012/2013 (%)
	2012	2013	
USA	7810	8744	12.0
Sweeden	3522	3120	(11.4)
UK	1717	2396	39.5
Germany	2034	2057	1.1
Finland	1789	1812	1.3
Austria	1672	1289	(22.9)
Denmark	1156	921	(20.3)
Canada	713	713	0.0
Spain	640	657	2.7
Belgium	678	640	(5.6)
Mexico	473	633	33.8
Italy	538	606	12.6
Australia	597	597	0.0
Netherlands	644	504	(21.7)
Chez Republic	330	306	(7.3)
South Korea	46	49	6.5
Turkey	10	10	0.0

Source:
IEA Renewables Information, 2015 .

2015

The Secretary General's

42th Annual Report

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

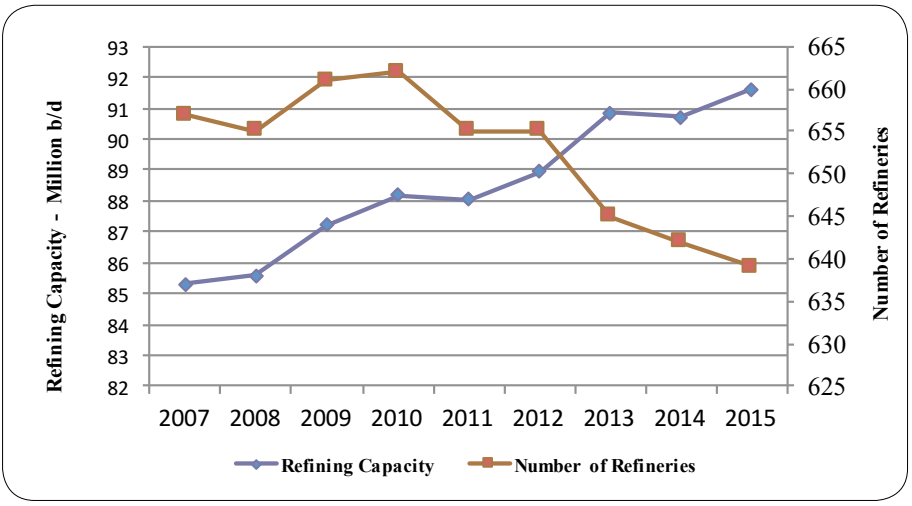
1. World Developments

Total world primary distillation capacity of crude oil recorded an increase of 900,000 b/d, representing an increase of 0.99% from its last year's level. It totalled about 91.62 million b/d at the end of 2015 compared to 90.73 million b/d at the end of 2014. The number of the world's operating refineries decreased from its 2014 levels to reach 639 refineries.

Figure (3-1) shows the development of the refining capacity and the number of world refineries between 2007 and 2015.

Figure 3-1

Development of World Refining Capacity and the Number of Refineries (2007 and 2015)



The refining capacity increase came from three regions: The Middle East, South America, and Asia/Pacific. The Middle East registered a huge increase by 870 thousand b/d, or 10.14% compared to 2014, due to operating YASREF Refinery in KSA with a capacity of 400 thousand b/d, and Al Ruwayyes 2 in the UAE with a capacity of 417 thousand b/d. a slight amendment has been made to other refineries in the UAE which led to a decrease of the total by 17 thousand b/d. Iraq's Al Basra Refinery's refining capacity has been increased from 140 thousand b/d to 210 thousand b/d. South America also registered an increase of 200 thousand b/d, or 3.11% compared to 2014, due to operating the second phase of the new Abrue Lima Refinery in Brazil. That led to increasing the refinery's capacity from 115 thousand b/d to 230 thousand b/d. Also, Colombia's Cartagia Refinery's capacity has been increased from 80 thousand b/d to 165 thousand b/d. Increase in Asia/Pacific was slight by 17 thousand b/d, or 0.04% compared to 2014. In spite of increasing India's Baradip Refinery's capacity from 116 thousand b/d to 300 thousand b/d, two refineries were shut down: Australia's Bulwer Refinery with a capacity of 102 thousand b/d, and Japan's Mizue Refinery in Kawasaki with a capacity of 65 thousand b/d. Other declines have been registered in North America, Western and Eastern Europe. In the USA, North Pole Refinery (17.5 thousand b/d) has been shut down. In Western Europe, Le Mede Refinery France (155 thousand b/d) has been shut down. Eastern Europe's refining capacity has dropped by 5.7 thousand b/d due to the closure of Russia's Tomsk Refinery.

Figure (3-2) shows the distribution of the total world primary distillation capacities by region by the end of 2015. Table (3-1) compares world primary distillation capacities by the end of 2014 and 2015.

The total capacity for catalytic conversion processes, which include fluid catalytic cracking (FCC), catalytic hydrocracking, catalytic reforming, and isomerisation increased by the end of 2015. It totalled to about 36.46 million b/d compared to about 35.65 million b/d at the end of 2014, representing 2.26%.

Figure 3-2

Distribution of World Primary Distillation Capacity by Region, End of 2015

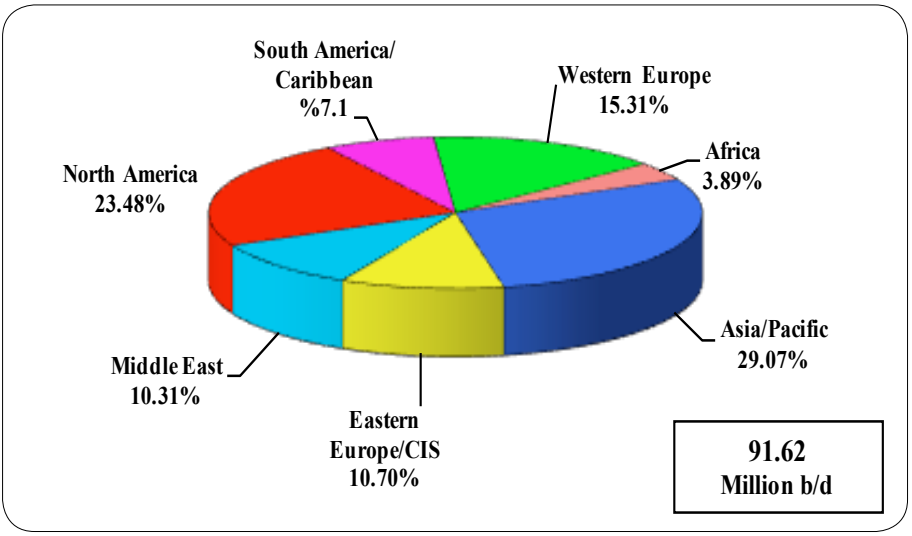
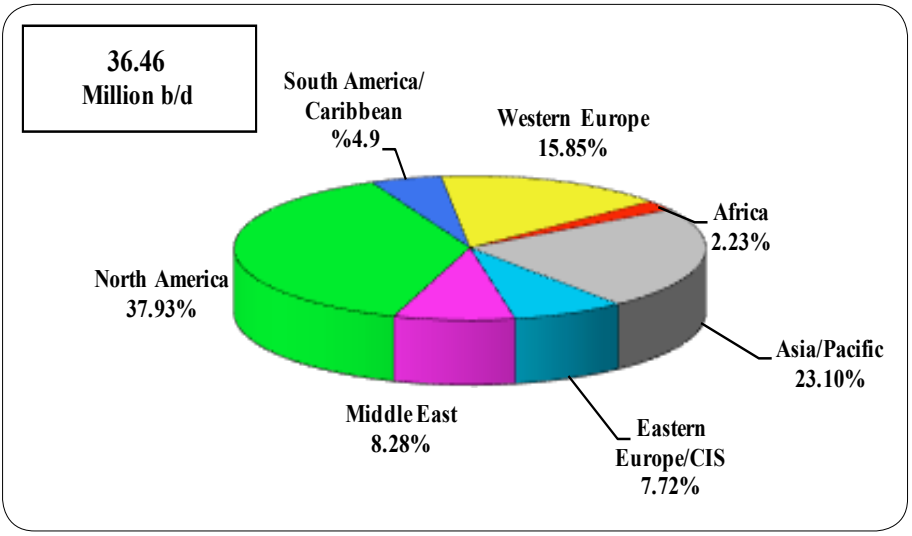


Figure (3-3) shows the distribution of world catalytic conversion capacity by region by the end of 2015. Table (3-2) compares world catalytic conversion capacity by region in 2014 and 2015.

Figure 3-3

Distribution of World Catalytic Conversion Capacity by Region, End of 2015



The 2015 increase concentrated in the total capacity of catalytic hydrocracking (by 320,000 b/d, or 4.88%). It increased from 6.60million b/d in 2014 to 6.92million b/d in 2015. Catalytic cracking processes increased by 240,000 b/d, or 1.59%, from 15.14million b/d in 2014 to 15.38million b/d in 2015. Total catalytic reforming capacity and isomerisation increased by 220 thousand b/d, or 1.62%, from 13.91 million b/d in 2014 to 14.13 million b/d in 2015.

Table (3-3) compares the total catalytic conversion capacities at the end of 2014 and 2015. Figures (3-4), (3-5) and (3-6) show comparisons between catalytic reforming capacity by region, catalytic cracking, and catalytic hydrocracking at the end of 2014 and 2015.

As for total coking capacities, 2015 has registered an increase of 250,000b/d, representing a hike of 4.57% from its 2014 levels, as it reached 5.77 million b/d by the end of 2015 compared to 5.51 million b/d by the end of 2014.

The increase is centered in the Middle East due to operating KSA's YASREF and UAE's Al Ruwais 2 refineries.

Table (3-4) shows a comparison between total coking capacity worldwide at the end of 2014 and 2015. Figure (3-7) shows the distribution of total coking capacities worldwide at the end of 2015.

Figure 3-4
Comparison of World Catalytic Reforming Capacity and Isomerisation by Region, End of 2014 and 2015
(%)

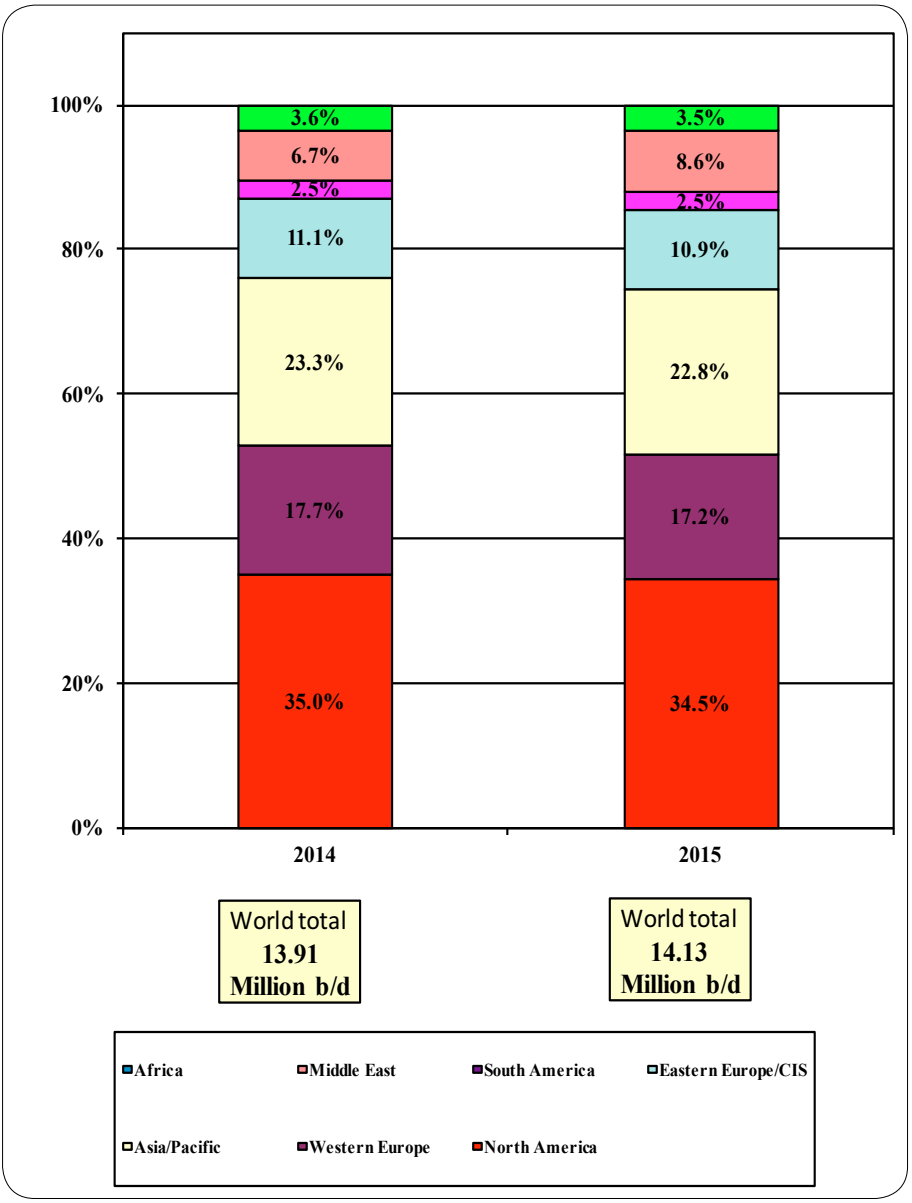


Figure 3-5
Comparison of World Fluid Catalytic Cracking Capacity by Region, End of 2014 and 2015
(%)

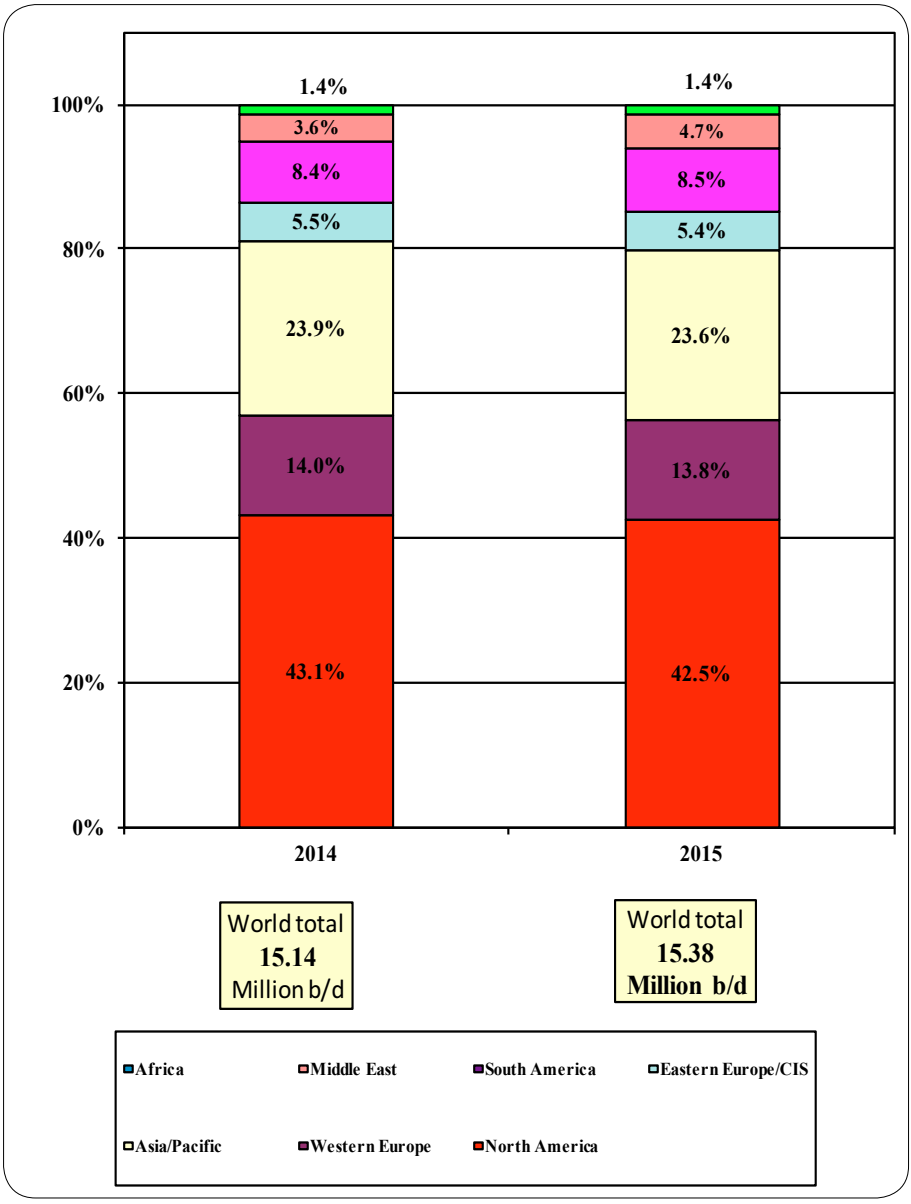


Figure 3-6
Comparison of World Hydrocracking Capacity by Region, End of 2014 and 2015
(%)

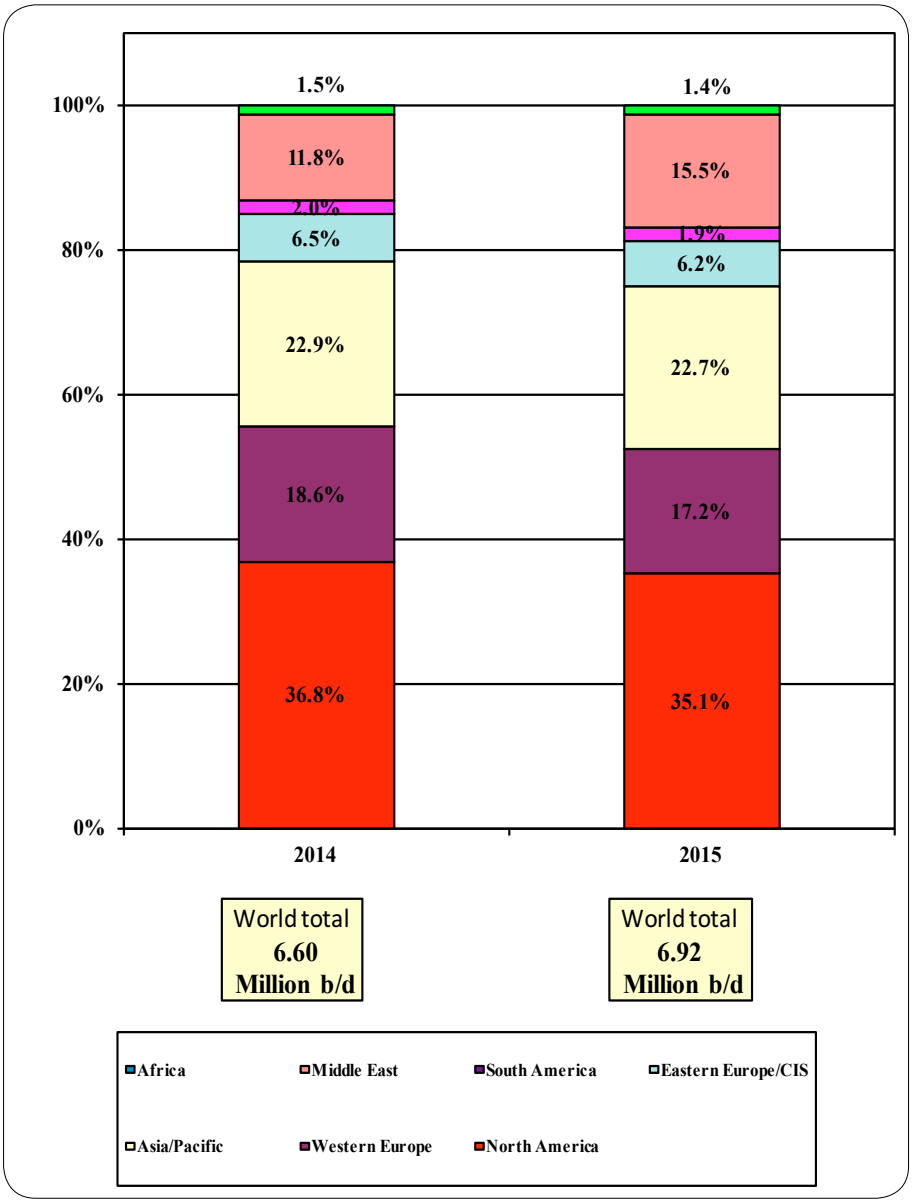
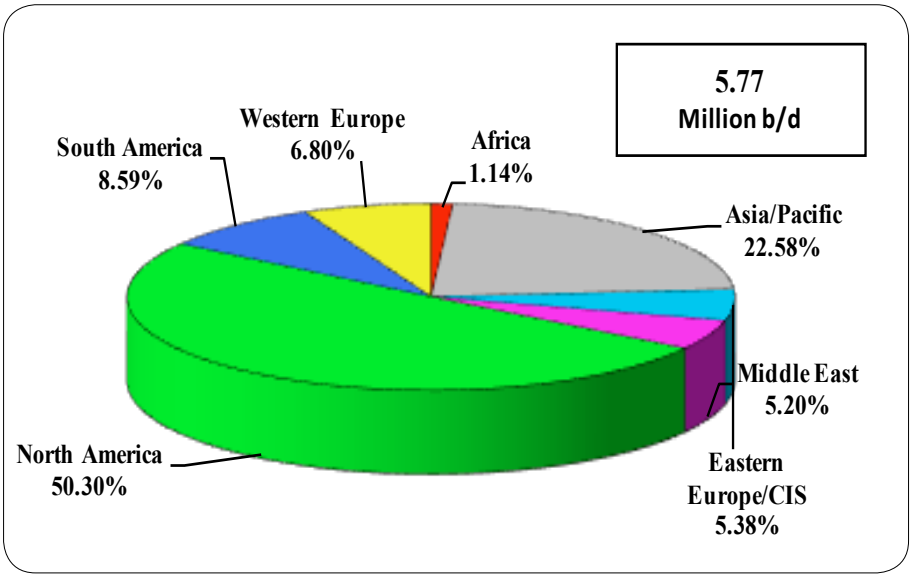


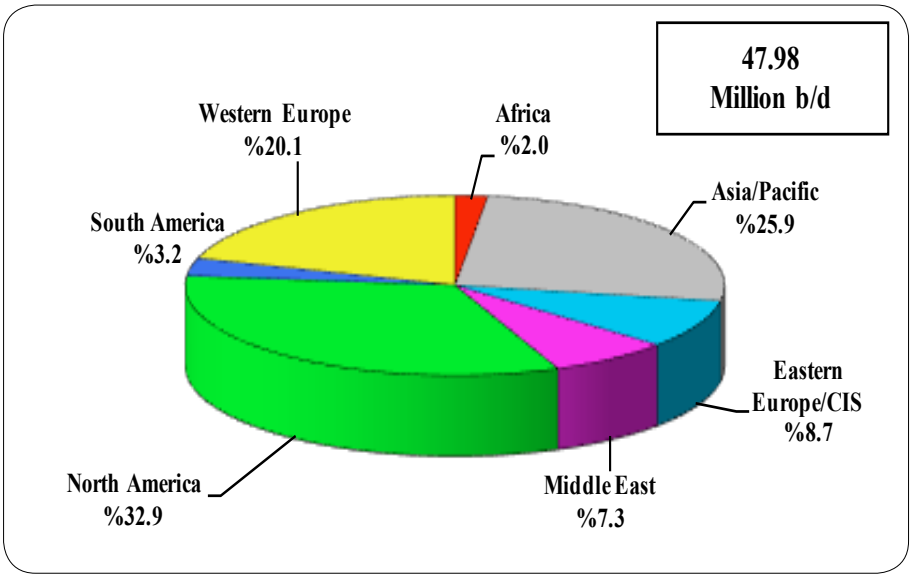
Figure 3-7
Distribution of Coking Capacities Worldwide
End of 2015



Total hydrotreating capacity in 2015 registered an increase of 460,000 b/d, or 0.97 %, reaching 47.98 million b/d from 47.52 million in 2014. The increase came from the Middle East with 770,000b/d. However, decline was registered in Asia Pacific by about 180,000 b/d or 1.443%, and Western Europe with about 130,000 b/d or 1.29% due to refineries' closure.

Table (3-5) compares total world hydrotreating capacity by region at the end of 2014 and 2015. Figure (3-8) shows the distribution of total hydrotreating capacity by region at the end of 2015.

Figure 3-8
Distribution of Total Hydrotreating Capacity by Region
End 2015



Following are the most significant developments in the oil refining industry worldwide in 2015:

1-1 Asia Pacific

In New Zealand, it was announced that work started in Marsden Point Refinery upgrading project at a cost of $365 million. The project aims at improving the refinery's efficiency, boosting its capacity to refine various types of crude oils, as well as building a CCR Unit to replace the old Semi-regeneration reformer.

In India, IOC Ltd announced the completion of the new Paradip refinery expansion and upgrading project. The refinery's capacity has been increased from 116 thousand b/d to 35000 b\b. the diesel hydrotreating unit has also started operating. The company also announced the start of the upgrading of Bihar District's Barauni refinery's capacity from 120 thousand b/d to 180 thousand b/d. The

project comes within the Indian Petroleum and Natural Gas Ministry's plan to increase the refinery's capacity up to 320 thousand b/d and establish a petrochemicals complex including a steam cracking unit with a capacity of 1.1 million tons/year.

In **Australia**, BP PLC announced halting refining operations at its 102,000 barrels per day (bpd) Bulwer Island refinery in Brisbane and turning it into jet fuel storage terminal.

In **Pakistan**, the upgrade and expansion of Korangi refinery, about 9 miles southeast of the center of Karachi, have been delayed. The project includes building a 15 thousand b/d diesel hydrotreating unit, and a 5000 b/d isomerization unit. The project aims to increase the refinery's production of diesel and gasoline to meet domestic demand, and help the plant meet Euro-2 environmental standards. National Refinery Ltd. (NRL) has let a contract to China National Chemical Engineering Corp. Ltd. (CNCEC) to execute the project mid-2014, which should be completed in 2016.

In **Japan**, TOA Oil Co LTD announced the closure of the 56 thousand b/d Mizue Refinery in Kawasaki due to its low profitability. The step came under the umbrella of a strategic plan to improve the oil refining industry's performance and profitability in Japan.

In **Vietnam**, work still in progress in Nghi Son oil refinery to be set up in the northern province of Thanh Hoa, about 180km south Hanoi. The refinery, with a capacity 200 thousand b/d, will be built along with a petrochemicals complex at a cost of $6 billion. It will be the largest refinery in Vietnam and should cover about 60% of the domestic market needs of petroleum products. It is expected to start production in 2018. The project is a joint venture between state-owned oil and gas firm PetroVietnam (25.1%) and a consortium of international companies, including Kuwait's KPI (35.1%), and Japan's Idemitsu Kosan Co. Ltd (35.1%) and Mitsui Chemicals (4.7%).

Also, Amec Foster Wheeler announced the award of an expansion contract by Binh Son Refining and Petrochemical Company Ltd (BSR), a subsidiary of Vietnam National Oil & Gas Group (PetroVietnam), for their Dung Quat oil refinery in Quang Ngai Province, Vietnam, at a cost of $1.82 billion. The project includes

increasing the plant's annual refining capacity from 90 thousand b/d to 140 thousand b/d. Construction work is due to begin in 2017 while operations are scheduled to start in 2022.

In **Malaysia**, Petroliam Nasional Bhd (Petronas) has announced that work in the development of the Pengerang Integrated Complex (PIC) in southern Johor is progressing. The project is estimated to cost about $27 billion. Construction work scheduled to be completed in the beginning of 2019.

1-2 North America

In the **USA**, ExxonMobil signed an engineering, procurement and construction management (EPCM) services contract with Jacobs Engineering Group Inc. for its Crude Flexibility Engineering and Construction Project at the ExxonMobil Refinery in Beaumont, Texas. The project aims to increase the refinery's capacity from 345 thousand b/d to 365 thousand b/d, enable the refinery to process locally- produced light shale oil, improve specifications, and meet the domestic petroleum products need.

Also, Motiva Enterprises LLC reported it will integrate the company's two Louisiana refineries—the 220 thousand b/d Norco facility and the 227 thousand b/d Convent facility—forming the Louisiana Refining System LRS). The project aims to improve the two refineries' performance, increase access to light oil, and reduce operating costs via optimizing interplant intermediates and conversion units, and increasing distillates yield. The project consists of the following main phases:

- Building three pipelines (35-miles each) to connect the existing LOCAP terminal in St. James, La., to the Norco refinery.
- Installing a 34-mile intermediates pipelines to directly connect the Norco and Convent refineries.
- Halting the FCC Unit at Convent refinery.
- Reconfigure the existing hydrocracker unit at its Norco refinery to process 30 thousand b/d.

1-3 South America

In **Colombia**, Ecopetrol SA said it started operations at its newly expanded crude unit at Refineria de Cartagena SA's (Reficar Refinery), whose capacity increased from 80 thousand b/d to 165 thousand b/d. the project aims to enable the refinery to process low-cost heavy crudes that are locally produces; produce a slate of higher-quality products that meet the highest Colombian and international environmental specifications; as well as, increase the production of light products. The company is also currently upgrading the Barrancabermeja refinery's processing capacity from 250 thousand b/d to 300 thousand b/d. it is scheduled for completion by the end of 2016.

In **Brazil**, Petrobras announced starting operating the second phase of Abrue Lima refinery project which consists of increasing the refinery's processing capacity from 115 thousand b/d to 230 thousand b/d, and building a coking unit with a capacity of 75 thousand b/d.

1-4 Western Europe

Due to severe competition in the European market, many refining companies plan to modernise and upgrade their existing refineries to boost their performance and profitability, or shut down other refineries.

France's Total SA announced the closure of its 155-thousand b/d La Mede refinery in the Riviera.

1-5 Africa

In **Angola**, construction work has been delayed at Sonaref refinery in Benguela province with a capacity of 200 thousand b/d at a cost of $8 billion. The refinery will process API30.1-oil (containing 0.33% sulphur) produced from Uganda's Girassol field. Angola's state-owned Sonangol will supervise the project. It should start operating by the end of 2016.

In Uganda, a consortium led by Russion RT Global Resources has been chosen to build Uganda's first ever crude oil refinery. It will

have a capacity of 60 thousand b/d to meet the domestic demand for petroleum products and export the surplus to neighbouring markets. The refinery will process locally produced 23-33API crude containing 0.16% sulphur. The two-phased project would be completed in 2018 for the first phase and 2020 for the second.

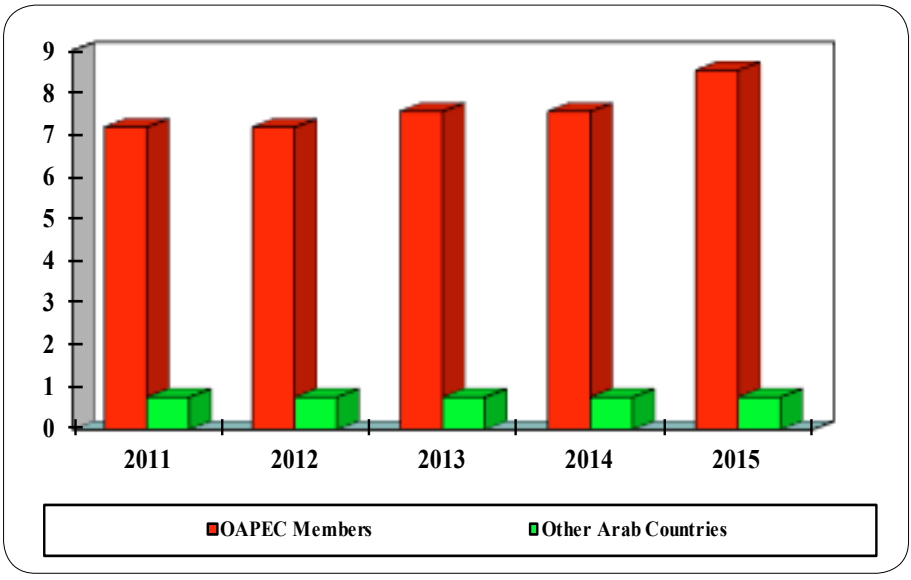
2. Developments in Arab Countries

Total primary distillation capacity of refineries in the Arab states in late 2015 has registered a large increase compared to its 2014 levels. The increase resulted from operating two new refineries: KSA's YASREF with a capacity of 400 thousand b/d and UAE's Ruwais 2 with a capacity of 417 thousand b/d; in addition to, increasing the refining capacity of Al Basra Refinery in Iraq from 140 thousand b/d to 210 thousand b/d.

Total primary distillation capacities of the 54 oil refineries in OAPEC member countries accounted for 8.53 million b/d, or 91.74% of the total primary distillation capacity of the Arab countries amounting to 9.30 million b/d. Total primary distillation capacity at the 11 oil refineries in other non-OAPEC Arab countries accounted for the remaining 772 thousand b/d, or 8.30%.

Figure (3-9) shows the evolution of primary distillation capacity in the Arab countries' existing refineries from 2011 to 2015. Table (3-8) shows the evolution of primary distillation capacity in the Arab countries from 2011 to 2015 and the number of refineries in 2015.

Figure 3-9
Evolution of Primary Distillation Capacity of Existing Refineries in the Arab Countries, 2011-2015
(Million b/d)



New refineries projects are facing many problems that delayed their execution, especially in Iraq, Libya, Algeria, and other non-OAPEC countries like Sudan and Yemen. Tables (3-9) and (3-10) summarize project status of the new refineries in OAPEC and non-OAPEC Arab countries in 2015.

Following are the most important developments in the Arab countries in 2015.

2-1 United Arab Emirates

Abu Dhabi Oil Refining Company (Takreer) has announced the completion of operating the new Ruwais Refinery Expansion Project with a refining capacity of 417,000 b/d, which increased the UAE's total refining capacity from 702 thousand b/d to 1119 thousand b/d. The number of refineries has become 5.

The project started back in 2006 to meet growing domestic demand for clean fuel and export excess to foreign markets. The new refinery's production capacity is 390 thousand of high quality light products, 1.2 million tonnes/year of Ethane and Propane that will be used as feedstock for the neighbouring Burouge petrochemicals complex.

The new Ruwais2 consists of 21 production unit, including a Residue Fluid Catalytic Cracker (RFCC), the largest in the world, with a capacity of 127 thousand b/d, and a Carbon Black Unit annexed to the Delayed Coker that can produce 40 thousand tonnes/ year of Carbon Black and 30 thousand b/d of crude oil. This is in addition to, a 69thousand b/d heavy naphtha hydrotreatment unit, a 108thousand b/d kerosene hydrotreatment unit, a 75thousand b/d light diesel hydrotreatment unit, a 57thousand b/d hydrocracker, a 37thousand alkylation unit, and a 27thousand b/d aromatic benzene recovery unit.

Abu Dhabi International Petroleum Development Company (IPIC) announced commencing the engineering, procurement and construction (EPC) preparations for constructing a new refinery in Fujairah with a refining capacity of 200 thousand b/d to produce light products to be exported to foreign markets and to meet domestic demand of marine fuel. The project's due date is 2020.

On another note, work is still in progress at the $800 million biofuel refinery in the Free Zone, Fujairah. It is owned by Petrixo Oil & Gas, a Dubai- based private company. The refinery will produce about

23,000b/d of bio-fuel products, which include bio-diesel, green diesel, bio-jet, bio-naphtha and bio-LPG. The refinery depends on turnip and canola seeds as feedstock for bio-fuel production. Beside production units, it also contains biomass residuals casing units. 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.

2-2 Bahrain

Australia's WorleyParsons has been awarded the project management consultancy (PMC) contract worth $87million on the upgrade planned by Bahrain Petroleum Co. (BAPCO) at its Sitra refinery. Also, BAPCO has awarded Chevron Lummus Global a $100 million contract to build the new vacuum gasoil hydrocracking units for the BAPCO Modernisation Programme.

BAPCO decided to expand Sitra refinery capacity from 260 thousand b/d to 360 thousand b/d at a cost of $6-8 billion. The project is scheduled for completion with a timetable, where the first phase starts in 2017 and the last phase in 2020. The project includes building new units and replacing many old ones so that the refinery can produce high quality petroleum products like Ultra Low Sulphur Diesel ULSD that can be exported to European and other markets that observe strict standards for transport fuel.

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

On another note, BAPCO has signed EPC contracts worth around $300 million to lay a new 350,000b/d light crude oil pipeline in cooperation with Saudi Aramco between the two countries, with the link due to be operational in 2018. Arabian Light crude oil will flow from Saudi Arabia to Sitra refinery. The old pipeline will be removed from service in 2018.

2-3 Algeria

Work is still ongoing in constructing 4 new refineries in Biskra, Ghardaia, Tiaret, and Hassi Messaoud; as well as, upgrading Algeria's existing refineries, in order to secure growing domestic demand for transport fuel until 2030. It is expected that Algeria's gasoline output would rise form 98thousand b/d to 183thousand b/d and gasoil output from 202 thousand b/d to 387 thousand b/d. Also, the upgrading plans would improve petroleum products specifications in line with international standards.

It is worth mentioning that the Energy Ministry announced an upgrade and expansion plan for Algeria's refining industry in 2011. The due date for completing the work has been 2018, however, delays are expected until beyond 2020.

As for the upgrade and expansion of existing refineries, it was announced that work to upgrade Skikda refinery to 335,000 b/d from 300,000 b/d has stopped. No new dates have been specified for resuming work.

2-4 Saudi Arabia

Saudi refining industry has witnessed an important development in 2015, as refining capacity has been increased from 2.5million b/d to 2.9million b/d, following the completion of initial operating work in the new YASREF refinery.

YASREF refinery is considered one of the most developed refineries in the Arabian region at a capacity of 400,000 b/d to process Arabian heavy oil from Maneefa oilfield 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. It is a joint venture between KSA's Aramco (62.5%) and China's Sinopec Group (37.5%).

The Refinery has been configured with 400,000 b/d Crude Distillation Unit, 177,000 b/d Diesel Hydrotreater, 85,000 b/d Naphtha

Hydrotreater, 84,000 b/d Continuous Catalytic Reformer (CCR), 20,000 b/d Isomerization Unit, 20,000 b/d Benzene Extraction Unit, 117,000 b/d Delayed Cocker Unit, 262 million cubic feet per day Hydrogen Generation Unit, and 3400 tons per day Sulfur Recovery unit.

The third planned refinery is Saudi Aramco's Jazan refinery. The EPC contracts were signed with 10 local companies. Starting date is expected to be in 2017.

Jazan refinery's capacity is 400,000 b/d. It will process the locally produced oils like Arab heavy and Arab medium. It will produce 80 thousand b/d of gasoline, 250thousand p/d of ULSD, 90thousand b/d fuel used in seawater distillation, in addition to over a million tonnes/year of benzene and xylene.

YASREF refinery is the second stage of a project to establish 3 new refineries with a capacity of 400thousand b/d each, following operating SATORP refinery in 2014. This comes as part of KSA's strategy to diversify its national income sources and boosting the crude oil's added value. it is expected that after operating Jazan's third new refinery, KSA would come the world's second top high quality petroleum products' exporter, in addition to its role as the top crude oil exporter to international markets.

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.

On another note, in line with the KSA's plans to secure stable markets for its crude oil output, Saudi Aramco and PT Pertamina, Indonesia's state oil and gas company, signed a Joint Venture Development Agreement (JVDA) to enable further progress to jointly own, upgrade and operate the Cilacap Refinery in central

Java, Indonesia. The agreement also includes a long-term-contract to supply Saudi crude to the refinery.

Upgrading and expansion of Cilacap Refinery aims at increasing its refining capacity from 348thousand b/d to 370thousand b/d. It is designed to process sour and heavy crude; it will also produce refined products that meet Euro IV specifications, basic petrochemicals, and Group II base oil for lubricants. Pertamina also mentioned that the EPC signing procedures are scheduled to start beginning of 2016.

2-7 Kuwait

The Kuwait National Petroleum Company (KNPC) announced signing a $13.1 billion EPC contract for the new Al Zour refinery project. The contract has been divided into five major EPC packages:

Package 1, worth $4.24 billion, including the establishment of basic units, has been awarded to a consortium of consolidated companies consisting from Spain's Técnicas Reunidas, China's Sinopec, and Korea's Hanwha.

The second and third packages, worth $5.8 billion, including work on the project's infrastructure supporting units, have been awarded to a consortium of companies including the US Flour, Korea's Daewoo, and Hyundai

The fourth package, worth $1.5 billion, including the construction of a petroleum products exporting terminal, has been awarded to 3 companies: Korea's Hyundai Engineering & Construction and SK Engineering & Construction, and Italy's Saipem.

The fifth package, worth $1.6 billion, including the construction of tankages for petroleum products and crude oil, and their affiliated pipelines, has been awarded to Italy's Saipem and India's Essar.

The new refinery will refine 615,000 b/d. It is due to be completed in 2019. 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.

Construction work still ongoing 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 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.

The project is part of Kuwait's efforts to expand its foreign investments in the refining industry in order to secure sustainable crude oil exports outlets as negotiations are still ongoing between KPI and the Indonesian government on 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. This is in addition to resuming negotiations with Chinese companies to take part in the planned refining and petrochemicals complex in Zhanjiang city at China's south coast with a refining capacity of 300 thousand b/d, and an ethylene cracker of 1 million tonnes/year.

2-9 Egypt

Construction work is still ongoing at Mostorod refinery run by the Egyptian Refining Co. (ERC). The project is scheduled for operation in 2017.

The project is a hydrocracking complex without an atmospheric distillation unit. It will receive Cairo Oil Refining Co. 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.

The project is designed to address Egypt's demand for petroleum products and to reduce about 93,000 tons/year of sulfur emissions.

In line with its plans to secure domestic demand for petroleum products, Egypt is supporting refining capacity expansion projects and the upgrading of existing refineries like Ain El Sokhna's new refinery project with a capacity of 240 thousand b/d to refine heavy oil. It is due for completion in 2020. This is in addition to a new atmospheric distillation unit at Alexandria Petroleum Company's refinery with a capacity of 100 thousand b/d. The list of upgrading existing refineries includes:

- Increasing the refining capacity of the MIDOR refinery in Alexandria from 100,000 to 160,000 barrels of crude oil per day by installing a distillation unit with a capacity of 60,000 b/d, a diesel hydrotreater with a capacity of 45,000 b/d, a solvent- deasphalting unit with a capacity of 14,000 b/d, and a hydrogen production plant with a capacity of 60,000 cubic metres/hour. The project is scheduled for completion in 2018 at a total cost of $1.4billion.
- Installing gas splitters in Asyut and Suez oil refineries with a production capacity of 5400 b/d of LPG.
- Installing a hydrocracker with a capacity of 47.7 thousand b/d, continuous Catalytic Reforming unit , and an isomerization unit that can increase gasoline production by 14.8 thousand b/d at Asyut refinery. An EPC contract has been signed with Italy's Technip at a total cost of $2.9 billion. It is due for completion in 2017.
- Establishing continuous Catalytic Reforming unit to produce gasoline of a high octane number with a capacity of 12.2 thousand b/d, an asphalt unit with a capacity of 7300 b/d at Alexandria refinery due for completion in 2018.

Rehabilitating and upgrading the existing delayed coker at Suez Refinery and installing a new delayed coker with a capacity of 95.5 thousand b/d at a cost of $3.5billion, in addition to a lubricant oils production unit at a capacity of 2300 b/d.

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

2-9 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 Company (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 2019.

II. PETROCHEMICAL INDUSTRIES

1- Global Developments

Global ethylene production capacity has decreased by over 2 million tpy compared to the same period in 2014 to reach 143.8 million tpy as shown in Figure (3-10).

The decrease is due to change in the data collection methodology across the world in 2015 and not because of actual decline in production capacities. Data collection methodalogy has changed to include newer and more accurate data on unit capacities, in addition to eliminating inactive units (*).

Figure 3-10

Total Global Existing Ethylene Production Capacity beginning of 2015 against beginning of 2014

(Million tons/year)

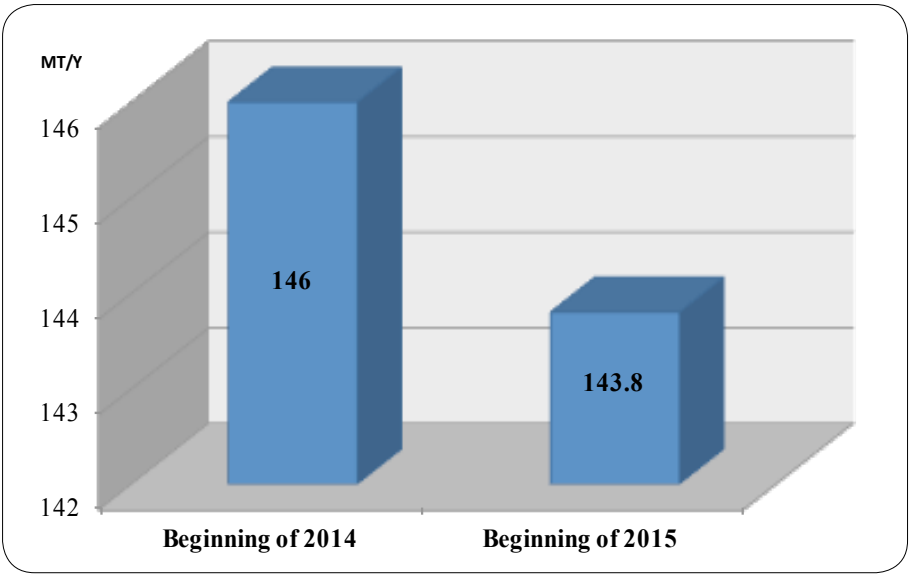


Table (3-9) shows the world's ten top ethylene production complexes. Ranking has changed in 2015 compared to 2014 after adjusting data according to those presented by the operators and reviewing data collection process. This led to Jurong Island

Petrochemicals Complex in Singapore, a subsidiary of ExxonMobil Chemical, to decline to come sixth on the list following amending their data from 3.5million tons/year to 1.9million tons/year. China's Millyan-Taiwan complex, subsidiary of Foromosa Chemicals, has jumped to top the list with a capacity of 2.9million tons/year. Other complexes rankings have not been genuinely affected in general.

Table (3-10) compares the existing ethylene production capacity worldwide by regions in 2014 and 2015. The MENA region has registered the highest increase with 1.5million tons/year due to boosting their operational capacity and the start of regular production at UAE's Borouge-3 plant.

Western Europe registered the biggest decline of 2.17million tons/year. Figure (3-11) shows the distribution of the total existing ethylene capacities worldwide in 2015. Table (3-11) shows the distribution of ethylene production capacity worldwide by country in 2014 and 2015.

Figure (3-11)

Distribution of Total Existing Ethylene Capacities in 2015 (million tons/year)

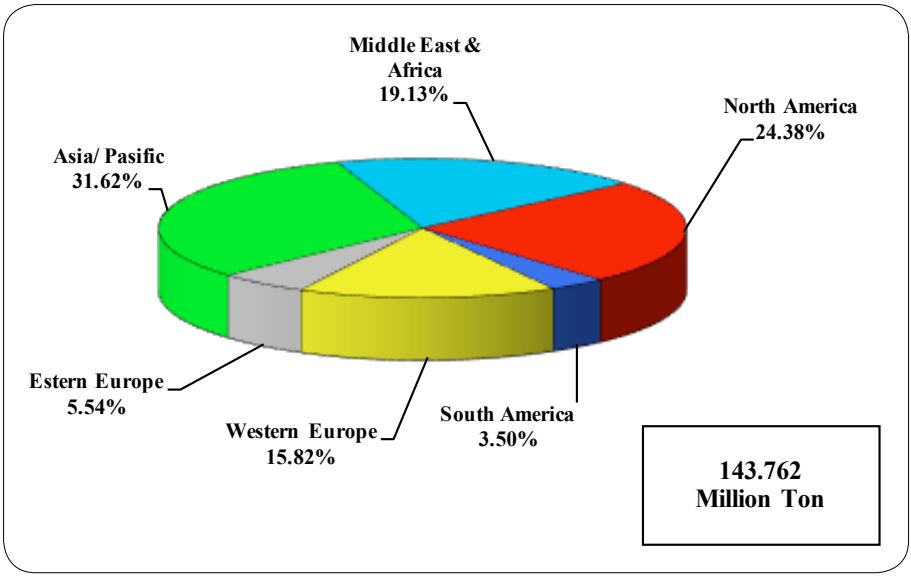


Table (3-12) lists the world's ten largest ethylene producers in the beginning of 2014. The table also shows the number of sites and the percentage of companies' actual shares in joint projects' ownership.

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

North America

The rise in NGL supplies, in addition to forecast on the continued growth in unconventional shale gas production in the long term, contributed to supporting expansion plans in ethylene production capacities in North America, in spite of the declining oil prices.

In late 2014, Chevron Phillips Chemical Company LP completed ethylene expansion at its Sweeny Complex in Old Ocean, Texas. Construction on the expansion began in 2013 to increase ethylene production by 91 thousand tons/year to increase annual production by 1.95 million tons. This represents the next increment of expansion to the company's ethylene production unit. The company is building toward the startup of the US Gulf Coast Petrochemicals Project in 2017 and supporting incremental growth of its olefins derivative businesses.

In February, the company announced conducting a study on increasing the linear low polyolefin production capacity to 58 thousand tons/year, from its current 48 thousand tons/year, at its Cedar Bayou plant, Texas, during 2016.

In February, Lyondell Basell announced the completion of the expansion of its La Porte ethylene production unit, Texas, by 363 thousand tons/year. It is scheduled for operation in Q3 of 2014. The project is one of four expansion projects which the company started and they are scheduled for completion by the end of the year. All expansions are benefiting from the rise of shale gas production in North America.

Also in February, ethylene unit at Geismar plant, Louisiana, started precommissioning operation and production. It currently operates at

full expansion capacity of 884 thousand tons/year compared to the previous production capacity of 612 thousand tons/year.

Ingleside Ethylene, LLC, the 50/50 joint venture between Occidental Chemical Corporation (OxyChem),and Mexichem, S.A.B. de C.V. , started installing a new ethane cracker in Q2 2014, which was planned to be built in the current OxyChem production unit in Ingleside, to provide a sustainable source of ethylene depending on ethane as feedstock from the growing US shale gas supplies to manufacture vinyl chloride monomer to be used in the production of polyvinyl chloride resins and PVC pipes. It is due for completion in Q1 of 2017.

In April 2015, the US Environmental Protection Agency (EIA) in Pennsylvania, announced its intentions to approve Shell's the Clean Air plan and issue them permits to start the planned petrochemicals complex at a production capacity of about 1.6million tpy of ethylene and polyethylene. Feedstock supplies will come from Shell's shares of the recently discovered shale gas in Marcellus and Utica.

Germany's ThyssenKrupp Industrial Solutions AG has been award a contract for work on Formosa Plastics' petrochemicals plant expansions at Point Comfort, depending on the low-cost gas surplus available in North America. According to EPA, the $2 billion planned expansion will increase the unit's ethylene production to 1.59 million tpy. It will include a low/density polyethylene (LDPE) production unit at a capacity of 625500 tpy, Olefins production unit, and a 545 thousand tons/year propylene production.

In February 2015, Sasol Ltd, South Africa, awarded GE Oil & Gas in Florence, Italy, a contract for the provision of the main compression trains required for its new low-density polyethylene Plant (LDPE), at a capacity of 450thousand tpy. It is being developed in Lake Charles, Louisiana, to integrate with its 1.5million tpy ethane cracking and downstream unit at petrochemical complex, at a cost of $8.9 billion due for operation in 2018.

By the end of Q4-2015, about 92% of the Etileno (21) petrochemicals complex constructions will be completed in Mexico.

The two stake holders in this joint venture are Braskem with a 75% stake and Idesa with the balance 25%. The complex will include an ethane cracker with annual production capacity of 1.05 million tons of ethylene that will be used to produce two grades of polyethylene (PE), with two high-density polyethylene (HDPE) lines totaling 750,000 tons/year. The project's total cost is estimated at about $2.5 to $3 billion, however, it has hit $5.2billion now. Preconnissing operations should start in Q2-2015.

Odebrecht has entered into a series of contracts for the ASCENT (Appalachian Shale Cracker Enterprise) petrochemical complex. In late 2014, it contracted Technip to supply its proprietary ethylene technology and process design package (PDP), as well as, INEOS Technologies to supply their polyethylene technology. The project includes an ethane cracker and three polyethylene production units. In the beginning of 2014, Odebrecht' Oil and Gas Co. has chosen Antero Resources to be the main ethane supplier required for the project.

NOVA Chemicals continued construction work in its high-density polyethylene unit expansion project, near Red Deer, Atlanta, at a capacity of 450.000 tpy. Mechanical work is scheduled to be resumed in Q4-2016. The project is part of NOVA's growth strategy 2020.

Asia- Pacific

Royal Dutch Shell PLC has concluded a long-planned upgrade and expansion of its ethylene cracker complex (ECC) on Bukom Island, Singapore, which along with the nearby 462,000-b/d Pulau Bukom refinery and 750,000 tpy monoethylene glycol (MEG) plant on Jurong Island, forms part of the company's fully integrated Shell Eastern Petrochemicals Complex. The project has boosted the plant's ethylene production capacity by more than 20% from its previous capacity. Shell relied on it's a strategy integrating refining and petrochemicals industries in its Singapore operations to meet growing regional ethylene demand.

China Petrochemicals Corp held up its plans to build a US$3.1-billion ethylene plant in Qingdao city, the first of its kind in China that relies on natural gas and light feedstock. The planning took 3 years to be resumed in 2016-2017.

Malaysian olefins producer Lotte Chemical Titan has let a contract to KBR Inc. the revamp of an existing steam cracker plant at its integrated petrochemical complex located in Pasir Gudang in Johor. The expansion project would increase the complex's production capacities for ethylene by 92,000 tpy, for propylene by 170,000 tpy, and for aromatics by 134,000 tpy.

Reliance Industries (RIL) has entered into agreements for its third phase of expansions at the Jamnagar refining and petrochemical complex in India. It will nearly double its ethylene production capacity to: 3.2 million tons/year from 1.88million tpy; 913thousand tons/year of propylene from 759thousand tons/year; 1.46million tons/year of ethylene glycol from 733thousand tons/year; 590thousand tons/year of LDPE from 190thousand tons/year; 1.47million tons/year of HDPE and LDPE from 928thousand tons/year; and 3.65million tons/year of paraxylene from 1.85million tons/year. The company also announced that it will invest $604.5million in ethylene glycol project in Pradeep at India's northern coast with a maximum planned capacity of 15million tons/year later this year.

Russia / Europe

Shell Chemicals Ltd completed upgrading operations to improve efficiency and increase production at the petrochmeicals plant operated by Shell Deutschland Oil GMBH in Wessling, Germany. The petrochemicals plant along with the Cologne-Godorf refinery represent an integrated refining and petrochemicals complex. The upgrade aims at increasing the production of ethylene, propylene, butane, and naphtha by 15% within Shell's strategy to enhance refining and petrochemicals integration. In 2014, 272thousand tons/year of ethylene have been produced from feedstock imported from the neighbouring Godorf refinery.

In September 2014, Borealis AG, Vienna, has signed an agreement with Neste Jacobs, Finland, to upgrade the ethane steam cracker at the Borealis AB petrochemicals complex located in Stenungsund site in Sweden. This is to increase the cracker's design capacity to 625 thousand tons/year using Borealis ethane feedstock imported from the USA. Borealis signed a 10-year contract to buy ethane from ANTERO Resources.

In November 2014, Petkim Petrochemicals Holding Co. completed expansions at its Veilig ethylene plant in Izmir, Turkey, raising production capacity by 13% from 520thousand tons/year to 588 thousand tons/year.

In April, Lukoil resumed ethylene and propylene production at the 350thousand tons/year Stavrolen petrochemical plant in the southern Russian city of Budyonnovsk following a fire that broke out at the ethylene production unit in February 2014.

Lukoil has also increased the ethylene unit production to operate by naphtha and natural gas supplied via rail from the company's refineries in Russia and from gas plants. Lukoil did not disclose current production rates at the plant.

Zap Sib Neftekhim (LLC), a facility for deep hydrocarbon to polyolefin processing in the Tyumen Region - SIBUR's investment project, started long-term plans to construct ZapSib-2 integrated complex to produce ethylene, polyethylene and polypropylene of Tobolsk City, Tyumen Region, West Siberia. The project is designed to operate a steam cracker with a capacity of 1.5 million tons/ year, 4 units to produce a total of 1.5 million tons/year of polyethylene, a 500 thousand tons/year propylene production unit, and 100 thousand tons/year butane-butylene fraction (BBF) unit, at a cost of $9.5 billion. It is scheduled for operation in 2019-2020.

Middle East

In April 2015, Turkmen Gas contracted Mitsu to supply technology for an under-construction petrochemicals plant in Turkmenbashi,

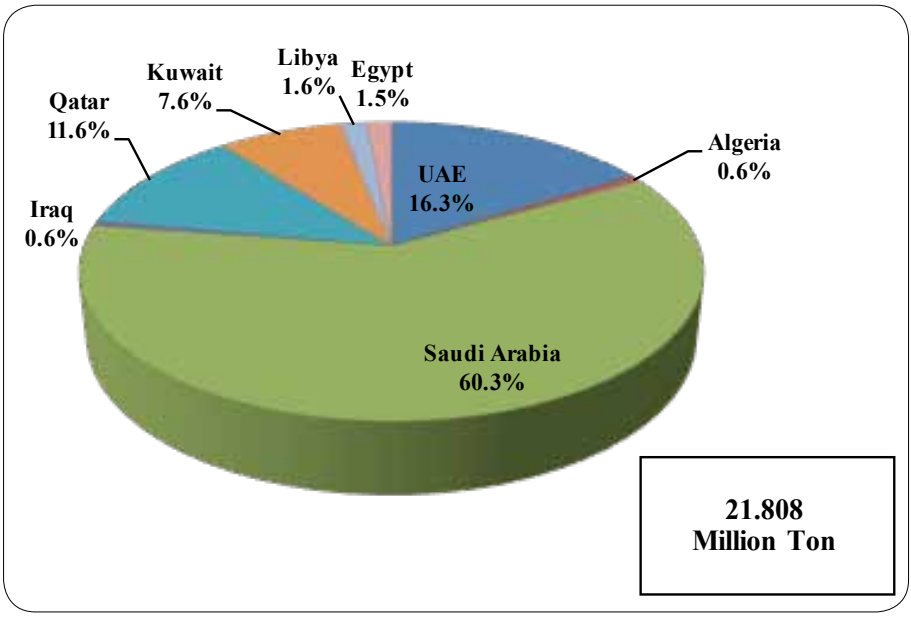
Balkan province, west Turkmenistan, at a cost of $3billion to produce 400 thousand tons/year of ethylene and HDPE, and 80 thousand of polypropylene. The plant will use gas imported from the Caspian Sea Region's fields. It is due for completion in 2018.

2- Arab Developments

Total ethylene production capacity in Arab countries has risen in 2015 by 1.5 million tons/year compared to 2014 to reach 21.8 million tons/year as shown in Table (3-13) which led to a hike in Arab countries' ethylene production to 14.47% of the world's total, compared to 13.916% in 2014. This is due to boosting operation capacity and the start of regular production at the UAE's Borouge-3 plant. Figure (3-12) shows the distribution of total ethylene capacities in Arab countries until the begunning of 2015.

Figure (3-12)

Distribution of Total Ethylene Capacities in Arab Countries, earlier of 2015



2-1 The United Arab Emirate

Abu Dhabi Polymers Co Ltd (Borouge) announced starting regular HDPE production at Borouge3 plant in Ruwais, Abu Dhabi. Borouge 3 comprises a 1.5 million tons/year ethane cracker and derivative plants, including high density PE (HDPE) and linear low-density PE (LLDPE) units with a combined capacity of 1.08 million tons/year; and two PP units with a combined capacity of 960,000 tons/year. The project will bring Borouge's total polyolefins capacity to 4.5-million tons/year against its current 2 million tons/year.

2-3 Saudi Arabia

Saudi Aramco announced that the construction work at its giant Sadara petrochemicals is nearly completed by 85%. The project is the world's largest chemical industries' complex completed in a single phase. It uses gas and naphtha as feedstock to produce more than 3 million tons/year of petrochemicals. Its first production unit should start operating in the second half of 2015. Full operation for the whole complex is due in 2016, starting with polyolefins, then ethylene oxide, followed by propylene oxide and its derivatives, and polyurethane.

In April, Saudi Basic Industries Corporation (SABIC) announced it expected to reach decision in Q2-2016 on plans to establish a new crude oil-to-chemicals (OTC) plant, with a capacity of 10 million tons/year, the first of its kind in the world with about $30 billion of investments. The project will put Saudi Arabia in a leading technical position in terms of the petrochemicals industry. it is due for operation in the end of 2020. Saudi Aramco is also studying the possibility of executing a similar oil-to-chemicals or oil-to-olefins project to be used in synthetic fibres.

In April 2015, Saudi International Petrochemical Company (Sipchem) announced starting precommissioning operations at its polybutylene terephthalate plant at a capacity of 63 thousand

tons/year, the first of its kind in the Middle East. It comes within the company's added value strategy for its current products, since butanediol, a basic feedstock for the production of polybutylene terephthalate, is produced by the International Diol Company (IDC), a Sipchem subsidiary.

On another note, the company announced the start of commercial production at its ethylene vinyl acetate (EVA) plant in industrial Jubail city with a capacity of 200,000 tons/year of low-density ethylene vinyl acetate (EVA) and polyethylene. The ethylene vinyl acetate (EVA) plant is a joint venture between Sipchem (75%) and South Korea's Hanwha Chemicals (25%). These polymers are important and necessary products for many conversional and final industries since a ethylene is the feedstock for the production of ethylene vinyl acetate (EVA) and linear low-density polyethylene Ethlene will be, provided by Jubail Petrochemicals and vinyl acetate monomer that will be provided by the International Vinyl Acetate Company. It is worth mentioning that ExxonMobil has the plant's license.

In June 2015, (Sipchem) announced commencing of commercial production of cable insulation polymers plant owned by Gulf Advanced Cables Insulation Company (a Sipchem affiliate) located in its complex in Jubail Industrial city with a capacity of 5000 tons/year, depending on the company's existing products which are Low density polyethylene (LDPE) and Ethylene Vinyl Acetate (EVA). Al Waha petrochemicals boosted performance and sales of propylene at production capacity of 460 thousand tons/year. The propylene serves as feedstock to make 450,000 tons/year of polypropylene. The company is supported by LyondellBasell, a foreign partner owning the Spherizone technology, the first of its kind in the Middle East and the largest in terms of global production capacity.

Saudi Arabia's Sahara and Ma'aden Petrochemicals Co announced commencing commercial operations at their joint venture (SAMAPCO) in Jubail Industrial city as of July 2014. It produces 250,000 tons/year of caustic soda and 300,000 tons/year of ethylene dichloride.

2-4 Qatar

In September 2014, Qatar Industries announced that it decided to freeze its Sejeel petrochemicals plant project without stating the reasons. It was due for completion in 2018. EPC (engineering, procurement and construction) have been announced last year by Qatar Petroleum and Qatar Petrochemical Company. It was supposed to be located in Ras-Lafan industrial city to produce ethylene, HDPE, LLDPE, PP, and butadiene.

2-5 Kuwait

In October 2015, Kuwait Petroleum Corporation (KPC) announced that the Petrochemical Industries Corporation (PIC) is working on a study to establish the Third Petrochemicals Complex to produce olefins and aromatics in Al Zour area to be integrated with Al Zour refinery to improve the project's economics. Olefins and Aromatics Plants projects on the other side. The project's cost is estimated at about $10 billion. The studies are expected to be completed by the end December 2015. EPC will then start and execution should follow in 2017.

2-5 Egypt

In June 2015, the Egyptian Petrochemicals Holding Company (ECHEM) announced that the ethylene and its products complex in Alexandria for Egyptian Ethylene & Derivatives Company (Ethydco) has entered into the operations and production phase. Production is scheduled to begin in 2016. The project is the largest of its kind in Egypt with a capacity of 460,000 tons/year of ethylene, 400,000 tons/year of PE and 26,000 tons/year of butadiene products. A total investment cost of $1.9 billion was made in the complex.

The company also announced expanding Misr Fertilizers Production Company (MOPCO) fertilizer plant in Damietta. The expansion project will increase production by 1.4 million tons/year

of urea and 800 thousand tons/year of ammonia. Production should start in Q1-2016.

In October 2015, Sidi Kerir Petrochemicals Co. (SIDPEC) signed a contract with Germany's Auda to build a new Amine treating plant to remove Co2 from natural gas to conform to the current contracting specifications of ethane-propane mix that feeds production lines. This would result in a larger production capacity for SIDPEC's two ethylene and polyethylene plants, as well as, Egyptian Petrochemicals Co.'s polyvinyl chloride plant. The splitter is due for completion during 2017. It is worth noting that SIDPEC produces 300thousand tons of ethylene, 225 thousand tons of polyethylene per annum, covering 70% of the domestic market's need.

2-6 Oman

In August 2015, Oman Oil Refineries and Petroleum Industries Company (Orpic) awarded an EPC contract to LyondellBasell to build its new 300 thousand tons/year polypropylene (PP) plant at Liwa Plastics Industries Complex in Sohar, Sultanate of Oman. Start-up of the Liwa Plastics project is planned for 2018, at a cost of $3.6 billion. The project includes building a new ethylene plant with a capacity of 800 thousand tons/year. The contract follows earlier EPC contracts awarded to CB&I for the production of (MTBE) at a capacity of 90 thousand tons/year, and a butane recovery unit-1 at a capacity of 41 thousand tons/year.

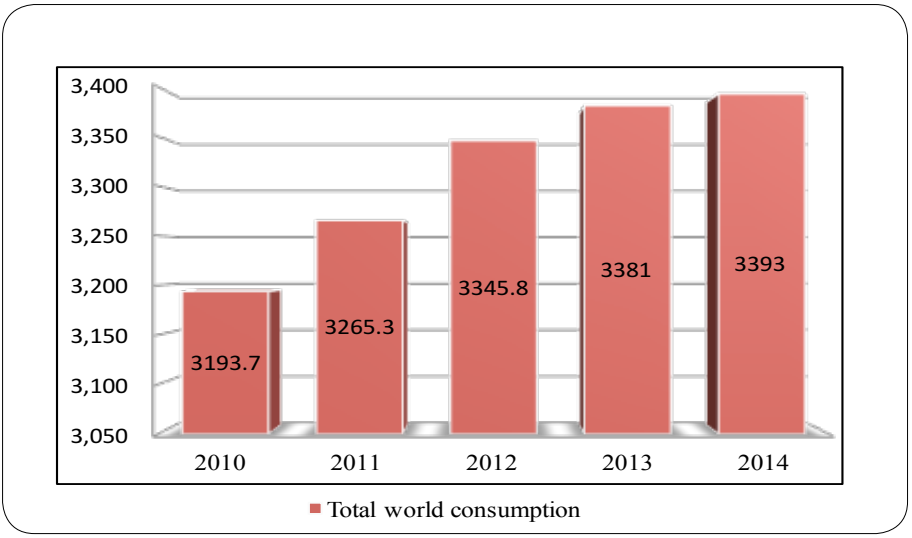
III NATURAL GAS CONSUMPTION, TRADE AND PROCESSING

1- World Developments

1-1 Natural Gas Consumption

Growth in the world's consumption of natural gas in 2014 reached about 0.4%, lower than the historical average of 2.4% for the past 10 years. World's consumption totalled about 3393 billion cubic meters in 2014 against about 3381 billion cubic meters in 2013. The share of natural gas in the world's total primary energy[1] consumption in 2014 has dropped to 23.7%[2] compared to 23.8% in 2013. Figure (3-13) shows the development of world natural gas consumption between 2010 and 2014.

Figure 3-13
Development of world natural gas consumption between 2010 and 2014 (Billion cubic meters)



[1] Primary energy covers commercially marketed fuel including the modern renewables used in power generation.

[2] Contribution to total consumption by TOE million units have been calculated.

In 2014, natural gas consumption growth rates were below average reaching in both OECD and emerging economies. EU demand for natural gas continued to decline for the second consecutive year by 11.6%. Germany, Italy, France, UK, and Ukraine recorded the largest volumetric decline in gas demand worldwide. This is in contrast to the USA, China and Iran, where demand for natural gas increased noticeably contributing with the largest share to the growth of global demand for natural gas in 2014.

Most major regions of the world witnessed a growth in natural gas consumption by different rates in 2014; the lowest was recorded in Central America by 1% with about 170.1 billion cubic meters, representing an increase of 1.7 billion cubic meters compared to 2013. Asia/Pacific consumption increased to 678.6 billion cubic meters in 2014 against 665.3 billion cubic meters in 2013, representing an increase of 2%.

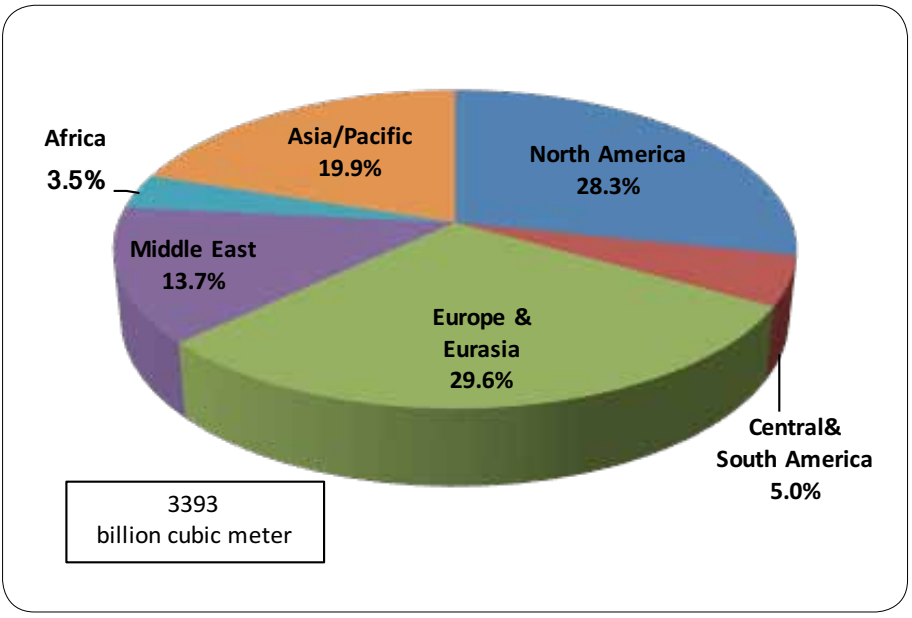
In North America, total consumption in 2014 reached about 949.4 billion cubic meters, against 928.5 billion cubic meters in 2013, or an increase of 2.5%. Consumption increased in the Middle East to 465.2 billion cubic meters in 2014 against 437.7 billion cubic meters in 2013, representing an increase of 6.3%, the highest worldwide.

Europe and Eurasia (including Europe, CIS, and Turkey) witnessed noticeable drop in consumption by 4.8% to 1009.6 billion cubic meters in 2014 against 1060.8 billion cubic meters in 2013.

Africa's consumption has slightly fallen by 0.1% to about 120.1 billion cubic meters in 2014 against 120.3 billion cubic meters in 2013. Table (3-14) and Figure (3-14) show the distribution of natural gas consumption worldwide in 2014.

Figure 3-14

Distribution of natural gas consumption worldwide in 2014



Natural gas production, however, has increased worldwide from 3408.8 billion cubic meters in 2013 to 3460.6 billion cubic meters in 2014, representing an increase of 1.6%. The USA maintained its position as the biggest natural gas producer worldwide with the largest share in world production last year. Its natural gas production increased from 689.1 billion cubic meters in 2013 to 728.3 billion cubic meters in 2014, representing an increase of 6.1%. Production declined in Russia by 4.3% and the Netherlands by 18.7%. both countries registered the highest volumetric decline worldwide.

North America registered the highest growth in production rates reaching about 5.3% from 903.3 billion cubic meters in 2013 to 948.4 billion cubic meters in 2014. It is followed by Asia-Pacific by 3.7%, as production increased from 512.3 billion cubic meters in 2013 to 531.2 billion cubic meters in 2014. Then came the Middle East that registered 3.5% increase from 580.5 billion cubic meters in 2013 to 601 billion cubic meters in 2014.

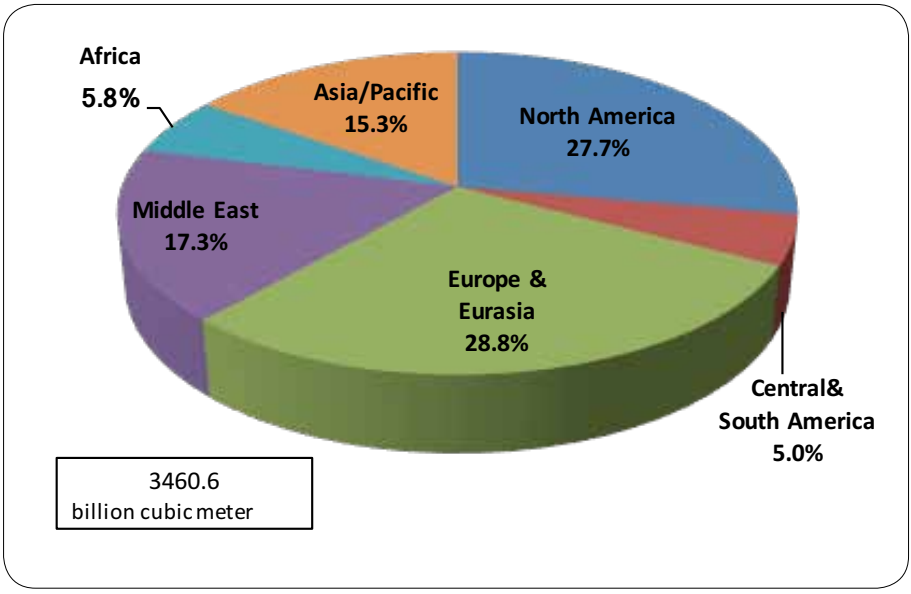
Central and South Americas witnessed the lowest growth rate of about 1%, as production increased from 173.3 billion cubic meters in 2013 to 175 billion cubic meters in 2014.

These increases happened against a decline in Europe and Eurasia's natural gas production by 3.1% dropping to 1002.4 billion cubic meters in 2014 compared to about 1034.7 billion cubic meters in 2013. Production also dropped in Africa by 1%, from 204.7 billion cubic meters in 2013 to reach 202.6 billion cubic meters in 2014.

Figure (3-15) shows the distribution of natural gas production worldwide in 2014.

Figure 3-15

Distribution of natural gas production worldwide in 2014

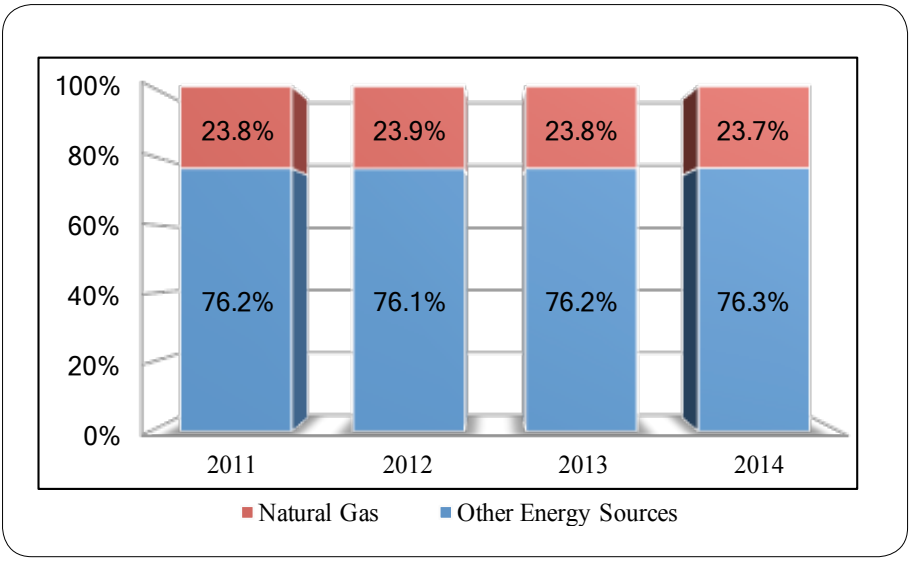


In 2014, most regions of the world maintained their share of natural gas in the primary energy balance except some hiltte changes compared 2013. The Middle East region maintained the highest share with 50.6% against 49.7% in 2013. Europe and Eurasia's share reached 32.1% against 32.8% in 2013. North America's share increased to 30.7% against 30.2 in 2013; while Central and South

Americas maintained their share at 22.1%. Asia/Pacific's share reached about 11.4% in 2014 against 11.5% in 2013. Africa's natural gas share declined in 2014 reaching about 25.7% compared to 26.5% in 2013. Table (3-15) and Figure (3-16) show the evolution of the share of natural gas in total primary energy consumption worldwide in 2011-2014.

Figure 3-16

Evolution of the share of natural gas in total primary energy consumption worldwide in 2011-2014

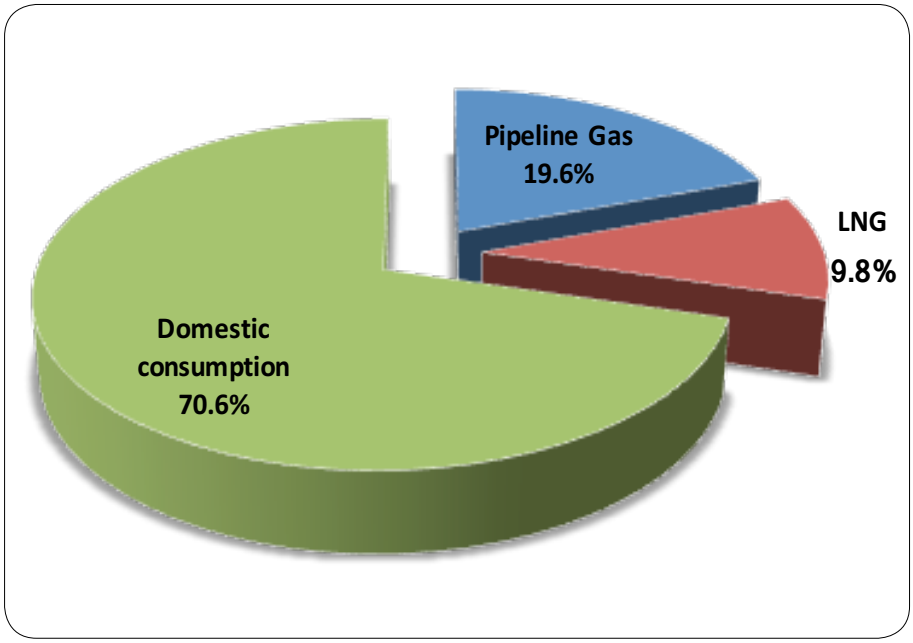


1-2 Natural Gas Trade

In 2014, the world's natural gas trade witnessed a noticeable drop of 3.4%. Total natural gas exports worldwide in 2014 reached about 997.2 billion cubic meters against about 1032.8 billion cubic meters in 2013. These figures cover both pipelines and liquefied natural gas (LNG) exports. The total amount of both claims about 29.4% 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 2014.

Figure 3-17

Distribution of Global Demand for Natural Gas during 2014

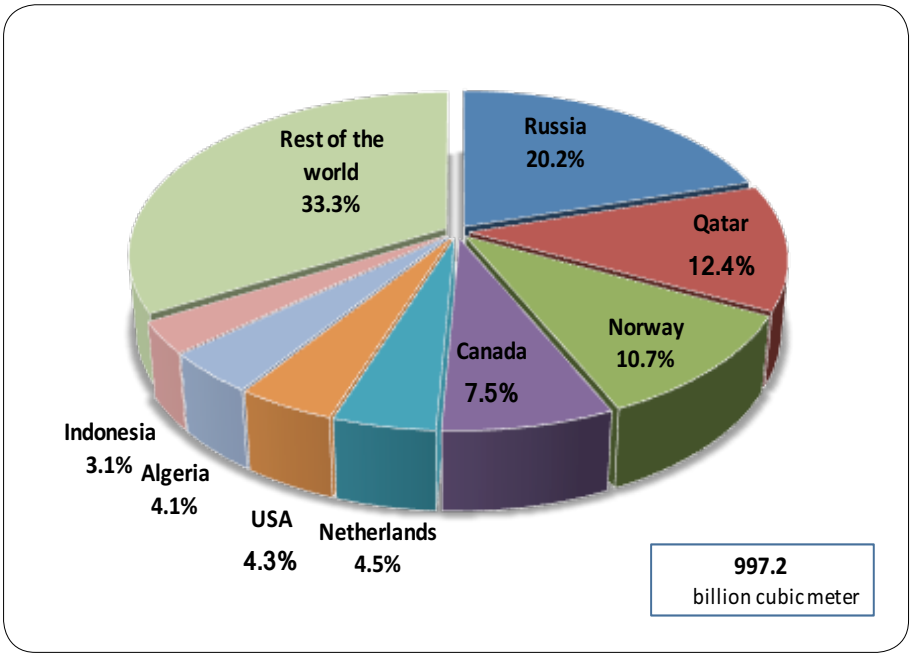


With regards to natural gas exports distribution worldwide in 2014, former Soviet Union region topped the list with 27.2% of total exports. Europe came second with 19.3%, followed by the Middle East with 16.1%, Asia Pacific with 13%, North America with 11.8%, while Africa contributed with 8.3%. South America came last with 4.3% of the world's total natural gas exports.

US imports of natural gas via pipelines from Canada declined to 74.6 billion cubic meters in 2014 compared to about 78.9 billion cubic meters in 2013. US imported only about 1.7 billion cubic meters of LNG from Trinidad and Tobago, Norway, and Yemen representing about 2.2% of the total imports. On the other side, total US exports of natural gas in 2014 reached about 42.7 billion cubic meters. Its natural gas exports via pipelines reached 21.8 billion cubic meters to Canada and 20.5 billion cubic meters to Mexico. Its LNG exports to Japan and Brazil reached about 0.4 billion cubic meters.

Russia topped the world's natural gas exporters in 2014, with a share of about 20.2% of the world's total exports. Its natural gas exports to European countries totalled about 147.7 billion cubic meters, with a decline of 14.7 billion cubic meters compared to 2013. Qatar came second with 12.4%, followed by Norway with 10.7%, Canada 7.5%, the Netherlands 4.5%, the United States 4.3%, Algeria 4.1%, and Indonesia 3.1%. The exports of the aforementioned countries collectively constitute about 66.7% of the total world's exports of natural gas, as shown in Table (3-16) and Figure (3-18).

Figure 3-18
Natural Gas Export Worldwide, 2014



The volume of natural gas exports by pipelines declined from about 707.5 billion cubic meters in 2013 to about 663.9 billion cubic meters in 2014, or by a drop of 6.2%. This is due to a drop in Russia and Netherlands' natural gas exports via pipelines to Europe, especially the UK, Germany, in addition to Ukraine because of the disturbances there.

LNG exports trade has flourished again in 2014 achieving an increase of 2.4%, or about 333.3 billion cubic meters compared to 325.3 billion cubic meters in 2013. The growth of LNG exports to China by (10.8%), and the UK (20.1%) has contributed to compensate for the decline in LNG imports by South Korean (6%) and Spain (15.7%).

Generally, LNG exports accounted for 33.4% of the total world natural gas exports in 2014, against 31.5% in 2013. Natural gas exports via pipelines accounted for about 66.6%, with a noticeable decline compared to 68.5% in 2013; as shown in Table (3-17), Figure (3-19), and Figure (3-20).

Figure 3-19
Evolution of Natural Gas Exports Worldwide, 2010-2014
(Billion/cubic meters)

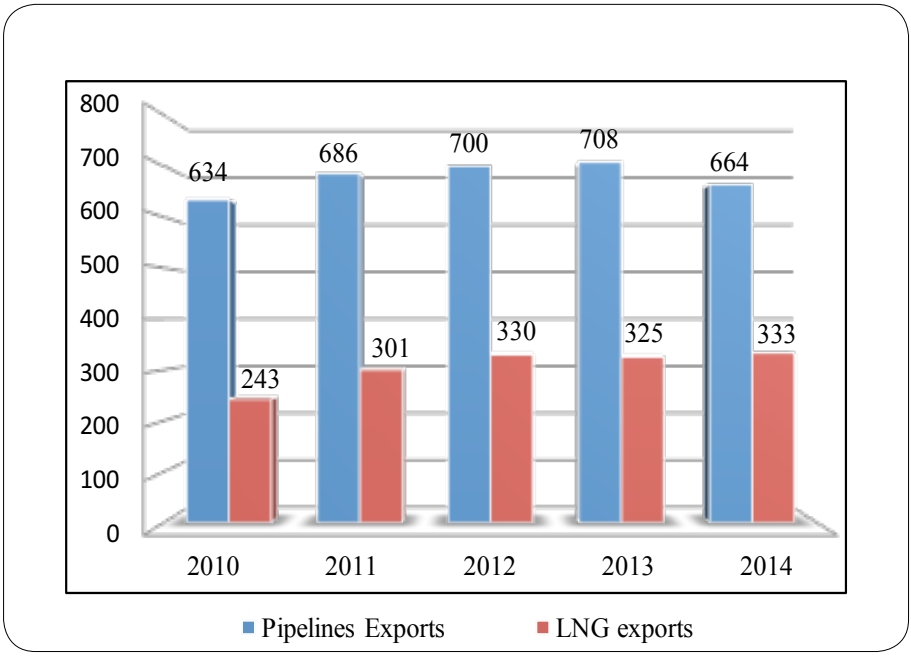
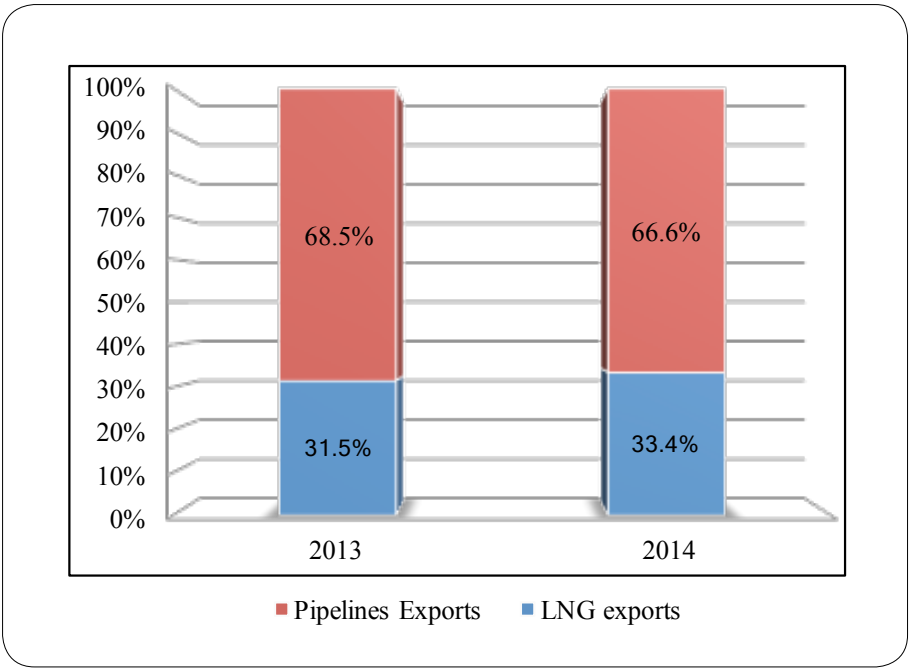
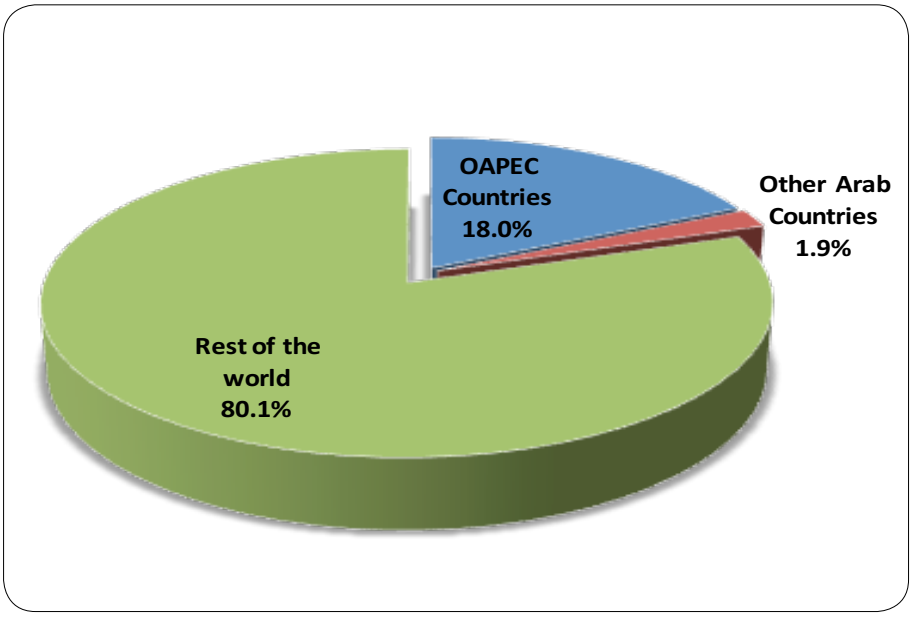


Figure 3-20
Distribution of Natural Gas Exports Worldwide, 2013 and 2014



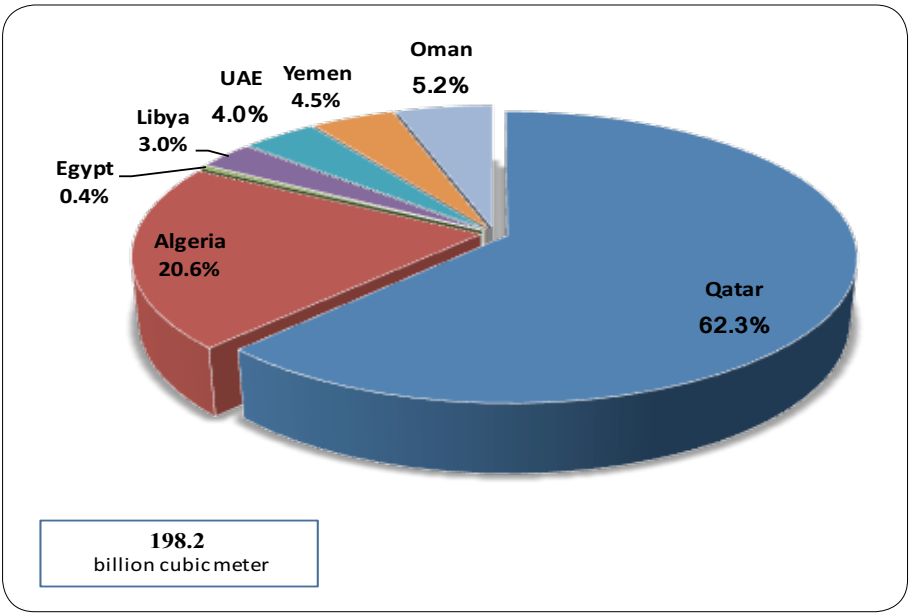
LNG and pipeline gas exports from Arab countries to the international markets in 2014 have dropped by 4% registering about 198.2 billion cubic meters compared to about 206.1 billion cubic meters in 2013. Combined Arab exports account for about 19.9% of the world's natural gas exports. Figure (3-21).

Figure 3-21
Distribution of the World's Natural Gas Exports, 2014



Qatar topped Arab countries' list with gas exports of 123.5 billion cubic meters, representing 62.3% of total Arab exports in 2014. Algeria came second with total exports of about 40.8 billion cubic meters, or 20.6% of total Arab exports, followed by Oman 5.2%, Yemen 4.5%, UAE 4%, Libya 3%, and finally Egypt 0.4%, as shown in Figure (3-22).

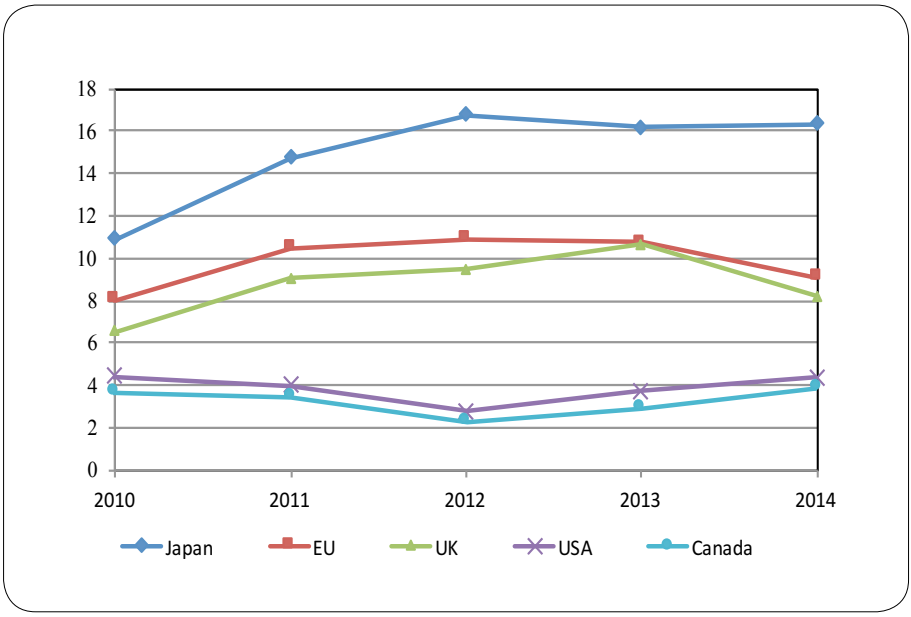
Figure 3-22
Distribution of Arab Natural Gas Exports, 2014
(Billion cubic meters)



1-3 World Natural Gas Prices

Natural gas prices, for both pipeline and LNG sales rose in some major markets in 2014, compared with their rates in 2013. The price of natural gas in the USA markets rose by 17.3% according to Henry Bob Center; and in Canada by 32.1%. Prices of natural gas transported to Japan (in the form of LNG) also increased by 1%. While they dropped in EU markets by 15.1%, and the UK by 22.7%. Figure (3-23) and Table (3-18).

Figure 3-23
World Prices of Natural Gas, 2010-2014
(USD/Million BTU)



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

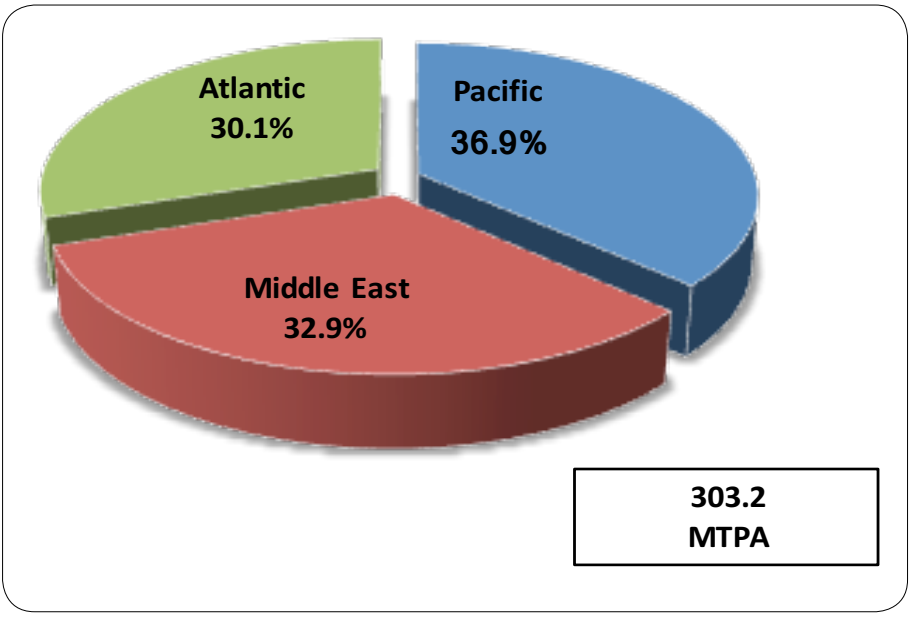
By the end of 2014, the world's nominal LNG production capacity reached about 303.2 million tons/year against 291.5 million tons/year by the end of 2013, representing an increase of 4%. 2014 witnessed operating Papua New Guinea's PNG LNG plant with a capacity of 6.9 million tons/year; in addition to operating Australia's Queensland Curtis LNG at a capacity of 4.3 million tons/year, and Algeria's new Arzio natural gas liquefaction plant with a capacity of 4.7 million tons/year. Two LNG units have been suspended at Arun LNG plant, with a total capacity of about 4.2 million tons/year, in Indonesia in order to be transformed to LNG receiving terminal. The number of natural gas liquefaction units (trains) reached about 92 units (trains) distributed in 19 countries (after adding Papua New Guinea). The suspension of Libya's Marsa Brega natural gas liquefaction plant continued 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 25.4% of the total world production. It is followed by Indonesia with about 29.9 million tons/ year or about 9.9%, then Algeria that came third bypassing Malaysia with 28.6 million tons/year or 9.4% of the world's production. The three countries combined production accounted for about 44.7% of the world's total LNG production by the end of 2014. Table (3-19)

As for the distribution of the world's nominal LNG production capacity by region by the end of 2014, Asia-Pacific topped the list with a total of about 112 million tons/ year, or 36.9% of the world's total production. The Middle East came second with about 99.9 million tons/year, or 32.9%, and finally the Atlantic region with a total capacity of 91.3 million tons/year or 30.1% of the world's total production in 2014. Figure (3-24).

Figure (3-24)

Distribution of the world's nominal LNG production capacity by region by the end of 2014



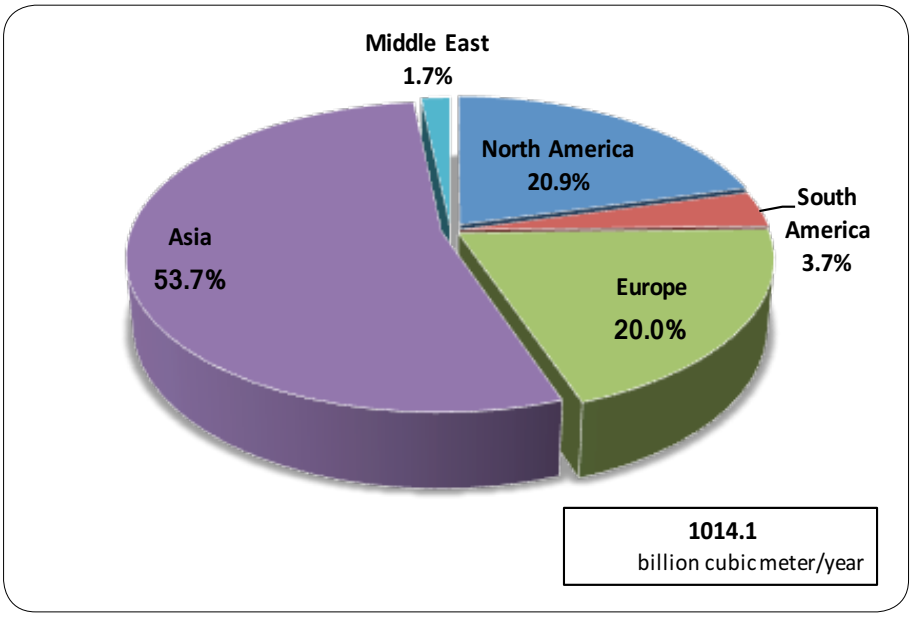
1-4-2 LNG Receiving Terminals

The total number of LNG receiving terminals by the end of 2014 has reached about 110 facilities with a total capacity of 1014.1 billion cubic meters/year (751 million tons/year), which is double the LNG's nominal production capacity worldwide.

As for the distribution of LNG receiving and regasification facilities' design capacity worldwide by the end of 2014, Asia still tops the list with about 544 billion cubic meters/year, representing about 53.7% 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 211.8 billion cubic meters/year, representing 20.9%. However, it is projected that North America will retreat in the coming period following converting some of its receiving terminals into LNG liquefaction and exporting facilities. Europe comes third on the list by 20% of the world's total, with a total design capacity of about 202.7 billion cubic meters/year. Europe is the second most important major market for LNG exports. LNG receiving terminals' design capacity reached about 37.8 billion cubic meters/year, or 3.7% in South America, and about 17.6 billion cubic meters/year, or 1.7% in the Middle East. Both South America and the Middle East represent emerging markets for LNG exports, which are expected to expand their LNG receiving terminals 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 2014



Following are the most important natural gas industry and trade developments worldwide in 2015:

In the **USA**, Cheniere, owner of Sabine Pass liquefaction plant, announced the completion of 95.2% of the project›s first and second production lines at a total capacity of 9 million tons/year. Operations and production of first quantities of LNG are expected to start in the beginning of 2016. Also, 73.6% has been completed of the third and fourth production lines at a total capacity of 9 million tons/year. Operations at these lines are expected to start by the end of 2016 and 2017 consecutively. In April, Sabine Pass received all required the federal energy regucatory commission FERC permissions allowing it to start building the fifth and sixth production lines at a capacity of 9 million tons/year. Work has already started in building the fifth production line in June upon sealing the required commercial deals for marketing its products and securing the required funding.

In December, BG Group and Energy Transfer Partners said they have gained approval from the US energy regulator for their liquefied natural gas (LNG) production and export plant in Lake Charles, Louisiana, at a capacity of 15 million metric tons of LNG/year. A final investment decision on the project is expected to be taken in 2016. The Lake Charles project will convert Energy Transfer›s existing LNG regasification facility in Lake Charles into a liquefaction plant. It is due for completion in about 4 years.

In **Iran**, 2 new phases have started to upgrade the Giant South Faris oilfield to produce 1.8bilion cubic feet of natural gas/day, 77 thousand b/d of condensates, 400 tons of sulphur/day, 1.1million tons of LPG, 1 million tons of and ethane/day. Production is scheduled to start by June 2016.

In another vein, in December, The National Iranian Oil Company announced reaching a final agreement with a French company to build a floating LNG unit at a capacity of 1 million tons/year. The project is expected to take about two years to complete. It will be fed by the associated gas from Frozan oilfield.

Azerbaijan's state-owned SOCAR announced that it plans to reach maximum production capacity at its Shah Deniz field during 2022-2028 at a production rate of 25 billion cubic meters/year. Current production of the project's phase 1 is about 10.5 billion cubic meters/year, while phase 2 (under execution) will contribute by about 16 billion cubic meters/year by 2022.

In **Australia**, BG Group announced in November that it started commercial operations for its second train at BG›s Queensland Curtis LNG (QCLNG), the world's first project to successfully convert natural gas from coal seams to liquefied natural gas. The first train started operations by the end of 2014. It is expected that the project would reach its full production capacity of 8.5 million tons/year by mid-2016.

Australian Pacific LNG announced in December the launch of operations at its LNG Australian Pacific project in Curtis Island.

The project also relies on converting natural gas from coal seams to liquefied natural gas. Australia is executing seven LNG projects simultaneously, which are expected to raise its LNG production capacity up to 86 million tons/year by 2017 overtaking Qatar as the world›s biggest LNG exporter.

In March, **Pakistan** started precommissioning operations at its first LNG receiving and regasification terminal at a capacity of 690 million cubic feet/day at Qassem Port in Karachi, following the arrival of Qatar Gas' first LNG shipment. Hence, Pakistan has joined NG importing countries. Pakistan suffers from an energy crisis. Current gap between gas production and consumption is about 2 billion cubic feet/ day. This situation has led Pakistan to resort to importing LNG via a floating terminal as an urgent solution to reduce the intensity of the crisis. The LNG shipments will be fully allocated to meet the electricity sector's needs. In the same vein, Pakistan is working to complete building the Pakistani side of the gas pipeline that will connect it to Iran under the name "Iran-Pakistan (IP) pipeline". The project has been delayed for long years. It aims at providing Pakistan with about 750 million cubic feet/day of Iranian gas. It is due for operation by the end of 2017.

In **Russia**, Gazprom Marketing & Trading Singapore, company of Gazprom Group and Yamal Trade signed a long-term sales and purchase contract for liquefied natural gas (LNG) from the Yamal LNG project. The contract that will be effective for over 20 years provides for the annual supply of 2.9 million tons of LNG that will be delivered to the Asia-Pacific markets, mostly to India. Yamal comprises 3 production lines with an annual capacity of 16.5 million tons. The project's investments are estimated at about $27 billion. The start of LNG production is scheduled for 2017. Also, Gazprom Marketing and Trading Singapore (GM&TS) and Pavilion Gas signed an LNG Sale and Purchase Agreement effective for 10 years. The document stipulates LNG supplies from Gazprom Group's portfolio to Asian countries, including Singapore. This deal aims at opening new marketing outlets in the Asian LNG market especially in light of

a drop in the company's exports to European markets due to current tensions with Ukraine.

On another note, Gazprom announced in May that it started construction of the marine section of the Turkish Stream Pipeline Project aiming at exporting gas from Russia to the gas thirsty-Turkey and then from there to south eastern Europe. The marine section includes 4 parallel offshore lines with a diameter of 32 inches, and a total production capacity of 63 billion cubic meters/year. It stretches along 900km with a depth of 2200 meters under the Black Sea waters.

In **Malaysia**, Petronas announced that it expects to complete Petronas Floating LNG, PFLNGI by Q1-2016. The project, the world's first of its kind, aims at producing 1.2 million tons of LNG/year. The final investment decision has been made back in 2012.

In Mozambique, which witnessed large gas discoveries in recent years, US energy company Anadarko said it provided local government with a proposed plan to export gas from offshore fields in block-1 in northern Mozambique with investments worth $20 billion. It said it will make a final investment decision once the government approves its development plan. Gas reserves at Block-1 are estimated at over 75 trillion cf. The proposed project will build a LNG production and exporting terminal consisting of two units with a capacity of 6 million tons/year, with the possibility to add new units in the future to reach a production capacity of 50 million tons/year.

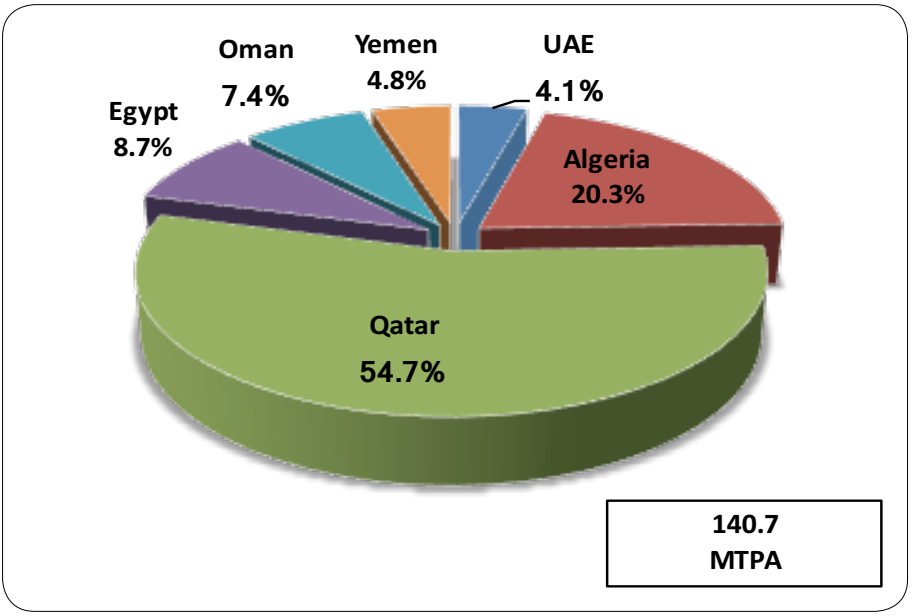
2- Most Important Arab Developments

On the Arab front, Arab countries' nominal LNG production capacity by the end of 2014 reached about 140.7 million tons/year, with an increase of 4.7 million tons/year following the operation of the new GL3Z gas liquefaction unit in Arzew, Algeria, during the same year. Qatar still tops the Arab list with about 54.7% of the total Arab countries' production capacity, followed by Algeria with

20.3%, Egypt 8.7%, Oman 7.4%, Yemen 4.8%, and the UAE with 4.1%. Table (3-20) and figure (3-26).

Figure (3-26)

Distribution of LNG design capacity worldwide by the end of 2014



Following are the most important natural gas industry and trade in the Arab countries during 2015.

2-1 UAE

The UAE's Energy Ministry is currently investing about $35 billion in energy projects. It aims at diversifying energy sources and reducing reliance on natural gas in power generation. The ministry aims at reducing the natural gas share in the electricity mix from about 100% now to 70% by 2020-2021. The UAE has been witnessing an increasing demand for natural gas for years. Domestic production is covering only 50% of the consumption needs, which led to increasing reliance on natural gas imports. Abu Dhabi imports about 2 billion

cf./day from Qatar via Dolphin pipeline. Dolphin Energy, the pipeline owner, is seeking to seal a deal with Qatar Petroleum to increase the amounts of gas pumped in via the pipeline. The company has recently completed increasing the pipeline's capacity to 3.2 billion cf./d following the installation of 3 new compressors, in addition to the existing operating 6 compressors.

As for natural gas fields upgrading projects, the beginning of the year witnessed operating The Shah ultra-sour gas field, 210km southern Abu Dhabi, at an average of 600million cf./d. It reached full capacity in July by receiving about 1 billion cf./d of crude gas following the success of safe pilot operation of the 2 gas processors and 4 sulphur processors, as well as, the production of about 500 million cf./d of processed gas which is pumped into the network. Al Hosn Gas is developing the field. The project is a joint venture between ADNOC (60%) and Occidental Petroleum USA (Oxy, 40%).

Shell has postponed taking a final investment decision on the project to upgrade Bab sour field, a joint project between Abu Dhabi National Oil Company (ADNOC) (60%) and Shell (40%) until 2017 instead of 2016. This comes in light of the company's plan to shrink capital investments by about $7 billion during 2016 due to declining crude oil prices in the world markets.

2-2 Bahrain

In December, Bahrain's National Oil and Gas Authority (NOGA) and its affiliate The Oil and Gas Holding Company (Nogaholding) signed an agreement for the establishment and operation of the first LNG receiving and regasification terminal in Bahrain with a consortium composed of Canada's Teekay LNG Partners L.P. (Teekay LNG), Korea's Samsung C&T (Samsung) and Kuwait's Gulf Investment Corporation (GIC). The project, to be developed on a BOOT (build, own, operate, transfer) basis, will be located in Hidd Industrial area. The project will comprise a Floating Storage Unit (FSU), an offshore LNG receiving jetty and breakwater, an adjacent

regasification platform, subsea gas pipelines from the platform to shore, an onshore gas receiving facility, and an onshore nitrogen production facility.

The winning consortium has chosen Korea's GS Engineering and Construction for the EPC work except for the FSU that will be leased from Teekay LNG by virtue of a twenty-year lease contract. Once online, the project is expected to meet the growing domestic demand for natural gas, mainly from the power sector.

On another note, it is planned to launch a bidding on a project to upgrade the production capacity of Bahrain National Gas Company (Banagas) from 300 million cf./d to 350 million cf./d in the coming period in order to embrace the increase in the gas associated with oil production from Tatweer Company.

2-3 Algeria

In spite of the fact that Algeria enjoys a large infrastructure for exporting natural gas with a capacity of over 85 billion cubic meters per year, its gas exports reached 41 billion cubic meters in 2014, which continues retreating annually. The reason behind the decline is the growing domestic demand for gas on a large scale at the same time when production has been falling from the main producing fields like Hasi Al Raml gas field, the largest contributor to the country's production. This is in addition to the delay in executing a number of upgrading projects for many years. However, 2015 has witnessed a noticeable activity in some delayed projects. In February, the Reggane Nord consortium that includes Germany's RWE Dea has commenced development drilling at the gas Reggane field. project in the Algerian Sahara. 26 development wells are planned for the first drilling campaign. The start of gas production is scheduled for summer 2017. The project aims at producing about 3 billion cubic meters of gas/year. It is developed by a consortium consisting of Germany's RWE Dea AG, Spain's Repsol, Italy's Edison, and Algeria's Sonatrach.

In April, Ireland's Petroceltic International plc announced the Israene consortium in charge of the development drilling on the Ain Tsila gas and condensate field in Algeria. China's Sinopec has been awarded the drilling contract to execute the drilling of 12 development wells in the north of the field. It should start production in 2018-Q4.

On another note, the only remaining third unit at In Amenas gas processing complex is still out of order following the deadly attack in the beginning of 2013. BP, with a share of 45.9% of the complex, announced earlier in 2015 that it plans to operate the third unit in a few months to reach the complex's full production capacity of about 6 billion cubic meter/year.

2-4 Saudi Arabia

In November, Saudi Aramco has signed 3 engineering, procurement and construction deals with 2 international firms for its major Fadhili Gas Plant project which is planned to start operations in 2019. Fadhili's capacity is estimated at 2.5 billion scfd of sales gas, 2 billion scfd of which are allocated for processing non-associated gas from the Hasbah field and a further 500 million scfd of non-associated gas from the Khursaniyah onshore field. Fadhili is expected to produce 1.5 billion scfd of sales gas, 4,000 metric tonnes per day of sulfur, and 470 million scfd of gas to fuel an adjacent cogeneration plant, which will provide the plant power and steam requirements and to export about 1,100 megawatts of power. Saudi Aramco's says that Fadhili gas plant will become a key component of the kingdom's Master Gas System, which will meet growing domestic demand for natural by expanding from its current 9.3 billion scfd of sales gas in 2014 to 12.2 billion scfd by 2021. Aramco is also executing another gas treatment project in Wasit tat was schedule to operate before the end of the year to process about 2.5 billion scfd of non-associated gas from Hasbah and Arabiyah offshore fields to produce 1.7 billion scfd of sale gas and pumping it into the kingdom's main gas system. Once in operation, the project will increase the KSA's natural gas

production by about 21%, will increase gas processing, along with Karan field that went online recently, by 40%.

On another note, negotiations are still ongoing between Saudi Aramco and Russia's Lukoil on the price of the gas to be produced from block-A which stretches across 29,900 square km awarded to the company in 2004 by virtue of a 40-year contract. The oil firm has made a gas discovery of about 14 trillion cubic feet of non-associated gas.

2-5 Iraq

In September, British Turkish Genel Energy Company has completed acquisition of Austrian OMV's 36% stake in Bina Bawi field, in the Kurdistan region of Iraq, which made the company own 80% of the shares. Work in progress to acquire the remaining 20% stake, as well as, 25% of the neighbouring Miran field from the regional government (the company's current stake is 75%); in order to fully acquire the two fields. The company plans to invest about $2.9 billion in upgrading the two fields, and about $2.5 billion to install two gas processors at a capacity of 14 billion cubic meters/year to produce about 10 billion cubic meters of sale gas/year to be fully exported to Turkey, in line with an agreement signed in November 2013.

In November, Iraq signed an agreement to import about 700-1200 million scfd of natural gas from Iran over six years via a new pipeline to feed three power plants in Basra. According to the agreement, Iran will export 700 million scfd of gas/d in winter; and 1200 million scfd of gas/d in the peak summer season. Iran said it was ready to install a pipeline inside Iran over the next 18 months. It is worth mentioning that Iraq has signed an earlier agreement with Iran back in July 2013 to import 850 million cubic feet of gas/d via a new pipeline that will be used to operate power plants in Baghdad and Diyala provinces. It was scheduled for operation before the end of 2015.

2-6 Qatar

In January, Qatargas delivered its first shipment of liquefied natural gas (LNG) to PTT's LNG receiving station in Map Ta Phut, Thailand. Qatar Liquefied Gas Co Ltd (3) had signed its first south-eastern Asia long-term sales and purchase agreement for LNG with PTT Group in December 2012 to supply 2 million tonnes of LNG per annum for the next 20 years, started from 2015.

In February, Royal Dutch Shell plc (Shell) announced the suspension of the 2 Pearl gas-to-liquids (GTL) trains in Qatar to enter planned maintenance. Pearl GTL is the world's largest gas-to-liquids complex, with a total capacity of 140,000 barrels per day of GTL products plus 120,000 barrels per day of natural gas liquids.

In April, The Jetty Boil-off Gas Recovery (JBOG) facilities started up officially. The project will enable boil-off gas to be collecred during LNG ship loading at the LNG terminals in Ras Laffan by 90%, with $800 million of investments. The project started operations in November 2014 and contributed for a whole year (until November 2015) in recovering about 535 thousand metric tons of LNG.

In May, Germany's Wintershall has ceased its activities at Block 4 in which Wintershall made the giant "Al Radeef" gas discovery off the coast of Qatar with about 2.5 trillion scf of gas. The withdrawal was due to failure to reach an agreement with Qatar Petroleum to access local infrastructure to process gas recovered from the field. This mad the project economically infeasible according to the company. Production was scheduled to start at a rate of 200-250 million scfd in the project's phase 1 to be furthered in next stages.

In November, Qatar and Pakistan agreed to sign a $15billion-agreement to export around 1.5million tons /year of LNG to Pakistan's Qassim port over a period of 15 years. The agreement crowned long negotiations that took months between the two sides.

2-7 Kuwait

Kuwait National Petroleum Co (KNPC) announced a plan to build a fixed LNG receiving terminal at a cost of $3.3 billion in Al Zour area with a capacity of 1.5billion scfd. It will include 4 reservoirs with a total storage capacity of 720 thousand cubic meters. Primary engineering designs include the possibility of doubling the terminal's capacity up to 3 billion scfd, and adding 4 extra reservoirs with a storage capacity of 720 thousand cubic meters. It is projected that the terminal will be online by 2020. Kuwait is currently importing LNG via Golar LNG's floating storage and regasification (FSRU) by a 5-year-lease contract ending in 2019.

In line with its efforts to reduce gas flaring rates associated with crude oil production, Kuwait Petroleum Company (KPC) succeeded in reducing flaring to 1.12% of the total gas production during the fiscal year 2014/2015. It is worth noting that in March 2012, KPC officially joined the Global Gas Flaring Reduction (GGFR) Partnership led by the World bank.

2-8 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.

2-9 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 liquid fuel imports by gradual replacement in vehicles and public transport, about 11,525 vehicles have been converted during the fiscal year 2014/2015. The total converted cars number is about 215,557 vehicles using natural gas since the start of activity until the end of June 2015. 7 natural gas stations have been

built which means that the total natural gas stations available for this purpose has reached 179. The number of housing units supplied with natural gas has reached about 709,600 units in the fiscal year compared to 666,000 in the previous year, representing an increase of 6.5%. The total number of housing units supplied with gas reached 6.8 million units.

In March 2015, British Petroleum (BP) has finally signed a contract with Egyptian Natural Gas Holding Company (EGAS) to execute West Nile Delta project with investments worth about $12 billion, following years-long negotiations. According to the agreement, BP will develop North Alexandria (BP's share is 60% and DEA's share is 40%) and West Mediterranean Deepwater (BP's share is 80% and DEA's shar is 20%). Reserves there are estimated at about 140 billion scf of gas, and about 55 million barrels of condensates, to produce about 1.2 billion scfd, or about 25% of Egypt's current natural gas production. It will be fully allocated to meet domestic demand. There is a will to accelerate development plans. Gas production is expected to start in 2017 at a rate of 450 million scfd, to be increased to 800 million scfd by 2018 until it reaches the targeted production.

It is planned to link the production of Libra and Taurus fields northern Alexandria with offshore gas facilities of Burullus Company (BGC) at BG's West Nile Delta (WND) concession. As for Fayoum, Giza, and Rafin fields in the same are, it is planned to install new onshore production lines. Giza and Fayoum's production will be processed in Rosita Gas processor in Eko, while a new neighbouring plant will be built to process Rain's production. In the same vein, Germany's DEA decided in March to pump an extra $240 million to increase the current production of Dissouk project at the onshore Nile Delta from 140 million scfd to 300 million scfd by summer 2016.

In April, the first Floating Storage and Regasification Unit (FSRU) has arrived in Ain Sokhna Port at the Red Sea, by virtue of a five-year-lease contract sealed by the Egyptian Natural Gas Holding Company (EGAS) with Norwegian Liquified Natural Gas services firm, Höegh. The FSRU's capacity is about 500 million cubic

feet of natural gas/day. start-up operations have been successfully completed. Commercial operations have been launched on 29 April. In April, EGAS signed another 5-year-contract with BW Singapore to lease Egypt's second FSRU with a storage capacity of 600-700 million scfd and a peak regasification capacity of 750 scfd. It arrived end of September.

Endeavouring to secure LNG shipments, EGAS has launched many bids, the most recent of which was in October and led to approving 7 out of total of 12 bidders to supply 55 LNG shipments as of November 2015 until December 2016. The total number of contracted shipments has reached 167.

2-10 Jordan

Following the stop of Egyptian natural gas supplies, Jordan started operating Golar Eskimo FSRU at Aqaba Port in May. Under the agreement signed between the National Electric Power Company (NEPCO) and Shell Global that will supply NEPCO with 1 million tons/year (or 150 million scfd of natural gas) for 5 years. The new FSRU's capacity is about 490 million scfd and reaches a peak of 750 million scfd. It comes under Golar copany by virtue of a 10-year-lease contract won by the company mid-2013.

In order to secure more LNG shipments to replace diesel and heavy fuel in the electricity sector, the National Electric Power Company (NEPCO) launched another bidding round in July to import about 59.13 trillion BTU/Y of LNG during the period 2016-2019. It opebd the door for bidding on supplying half the targeted quantity with a deadline in September of the same year. Royal Dutch Shell has won the bid again for the years 2016 and 2017.

2-11 Oman

Oman Oil Company for Exploration and Production (OOCEP) announced the commencement of commercial export of Block 60 tight gas and condensate from the Abu Tabul Field officially. It was

awarded to the company in 2010. Abu Tabul also known as Block 60, a 1,500 sq kilometre concession. The company said in a statement that production from Abu Tabul Field has commenced with gas feeding into the world class gas processing plant at a rate of 27 MMscfd and condensate averaged at 2,500 bpd. Efforts have been condensed to ramp up production to 70 MMscfd and 5,500 bpd of condensate with $1 billion of investments. Once completed, production will reach about 70 million cubic feet/day, and about 6,000 b/d of condensates by the end of the year.

UK's BP said it was determined to continue work at Khazzan tight gas project in Block 61, central Oman, in spite of the sharp drop of oil prices that resulted in the company's investment cuttings in 2015 budget. The company aims at starting production in 2017. It will ramp up to about one billion cubic feet/day and about 25 thousand b/d of condensates over a period of 20 years, in order to recover about 7 trillion scf of the field's reserves within phase one of the project. This mega project investments are estimated at about $16 billion.

On another note, National Iranian Gas Export Company (NIGE) confirmed in September that it expects to complete the Iran-Gas export pipeline project by the end of 2017. Gas production will start in the beginning of 2018. Oman and Iran signed a final agreement in March 2013 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 Iranian Offshore Engineering & Construction Company is currently conducting a feasibility study on the offshore side of the project while Iran's Pars Consulting Engineering Group is conducting the feasibility study for the onshore side to determine on the best route for the proposed pipeline.

2015

The Secretary General's 42th Annual Report

TABLES

CHAPTER THREE

Table 3-1

World Exixting Topping Distillation Capacity by Region, 2014 and 2015

(Million b/d)

	2014	2015	Difference	(%) Change 2014/2015
Africa	3.57	3.57	0.00	0.00
Asia/Pacific	26.62	26.63	0.01	0.03
Eastern Europe/CIS	9.81	9.80	(0.01)	(0.9)
Middle East	8.58	9.45	0.87	10.14
North America	21.53	21.51	(0.02)	(0.08)
South America/ Caribbean	6.44	6.64	0.20	3.11
Western Europe	14.18	14.03	(0.15)	(1.09)
Total	**90.73**	**91.62**	**0.90**	**0.99**

Source:
- OAPEC Refining Industry Database

Table 3-2

World Catalytic Conversion Capacity by Region*, 2014 and 2015

(Million b/d)

	2014	2015	(%) Change 2014/2015
Africa	0.81	0.81	(0.49)
Asia/Pacific	8.38	8.42	0.51
Eastern Europe/CIS	2.81	2.81	0.07
Middle East	2.26	3.02	33.63
North America	13.83	13.83	0.01
South America/Caribbean	1.75	1.79	2.17
Western Europe	5.81	5.78	(0.58)
Total	**35.65**	**36.46**	**2.27**

* Includes catalytic cracking, hydrocracking and catalytic reforming.
Note: Parentheses denote negative figures.
Source:
- OAPEC Refining Industry Database

Regional Catalytic Conversion Capacity by Process, 2014 and 2015

(Million b/d)

	Catalytic Reforming				Catalytic Cracking				Catalytic Hydrocracking			
	2014	2015	Dif-ferent	(%) Change 2014/2013	2014	2015	Dif-ferent	(%) Change 2014/2013	2014	2015	Dif-ferent	(%) Change 2014/2013
Africa	0.50	0.50	0.00	0.00	0.22	0.22	0.00	1.85	0.10	0.10	0.00	3.09
Asia/Pacific	3.24	3.22	(0.02)	(0.56)	3.63	3.63	0.00	0.03	1.51	1.57	0.06	4.04
Eastern Europe/CIS	1.54	1.54	0.00	(0.13)	0.84	0.84	0.00	0.48	0.43	0.43	0.00	0.23
Middle East	0.94	1.21	0.27	29.27	0.55	0.73	0.18	33.46	0.78	1.07	0.29	37.89
North America	4.87	4.87	0.00	(0.06)	6.53	6.53	0.00	0.02	2.43	2.43	0.00	0.16
South America	0.35	0.35	0.00	(0.57)	1.27	1.31	0.04	3.39	0.13	0.13	0.00	(1.52)
Western Europe	2.47	2.44	(0.02)	(1.01)	2.12	2.12	(0.00)	(0.19)	1.23	1.19	(0.04)	(3.17)
Total	**13.91**	**14.13**	**0.22**	**1.61**	**15.14**	**15.38**	**0.24**	**1.59**	**6.60**	**6.92**	**0.32**	**4.88**

* Includes catalytic cracking, hydrocracking and catalytic reforming.
Note: Parentheses denote negative figures.
Source:
- OAPEC Refining Industry Database

Table 3-4

World Delayed Coking process Capacity by Region, 2014 and 2015

(Thousand tons/d)

	2014	2015	Difference	(%) Change 2014/2015
Africa	0.07	0.07	0.00	0.00
Asia/Pacific	1.30	1.30	0.00	0.00
Eastern Europe/CIS	0.31	0.31	0.00	0.00
Middle East	0.05	0.30	0.25	525.00
North America	2.90	2.90	0.00	0.00
South America	0.50	0.50	0.00	0.00
Western Europe	0.39	0.39	0.00	0.00
Total	**5.51**	**5.77**	**0.25**	**4.57**

Note: Parentheses denote negative figures.
Source:
- OAPEC Refining Industry Database

Table 3-5

World Hydrotreating Capacity by Region, 2014 and 2015
(Million b/d)

	2014	2015	Difference	(%) Change 2014/2015
Africa	0.94	0.94	0.00	0.43
Asia/Pacific	12.59	12.41	0.18	(1.44)
Eastern Europe/CIS	4.18	4.18	0.00	0.12
Middle East	2.72	3.48	0.77	28.18
North America	15.77	15.77	(0.00)	(0.03)
South America	1.54	1.54	0.00	0.00
Western Europe	9.79	9.66	(0.13)	(1.29)
Total	**47.52**	**47.98**	**0.46**	**0.97**

Note: Parentheses denote negative figures.
Source:
- OAPEC Oil Refining Data Base

Table 3-6

Installed Refining Capacity in the Arab Countries, 2014-2015

(Thousand b/d)

	Number of Refineries in 2015	2011	2012	2013	2014	2015
Algeria	6	582.9	582.9	582.9	582.9	650.9
Bahrain	1	267.0	267.0	267.0	267.0	260.0
Egypt	8	725.5	725.5	769.8	769.8	769.8
Iraq	12	812.0	822.0	821.9	876.0	946.0
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	9	2107.0	2107.0	2507.0	2507.0	2907.0
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	5	690.0	690.0	707.0	702.0	1119.0
Total OAPEC	**54**	**7057.5**	**7067.5**	**7528.7**	**7577.8**	**8525.8**
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	154.7	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	772.1	772.1	772.1	772.1	772.1
Total Arab Countries	**65**	**7829.6**	**7839.6**	**8293.8**	**8410.9**	**9297.9**

Source:
- OAPEC Refining Industry Database

Table 3-7

New Refinery Construction Projects in OAPEC Member Countries

Country	Project	Status 2014	Refining Capacity 1000 b/d	Status 2015
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	107	Construction
	Ain al-Sokhna	Postponing	240	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	615	Construction
Libya	Tubruq	Initial Study	300	Initial Study
	Obari	Initial Study	50	Initial Study
Saudi Arabia	Jazan	Construction Bid Evaluation	400	Construction
Syria	Fujaira	EPC Contract	140	EPC Contract
UAE	Ruwais	Construction	200	Construction

Source:
- OAPEC Refining Industry Database

Table 3-8

New Refinery Construction Projects in Other Arab Countries

Country	Project	Status 2014	Refining Capacity 1000 b/d	Status 2015
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

Source:
- OAPEC Refining Industry Database

Table 3-9

World Top 10 Ethylene Complexes, January 2015

	Company Name	Location	Production Capacity (Thousand tons/Year)
1-	Formosa Petrochemical Corporation	Mailiao, Taiwan, China	2935
2-	Nova Chemicals Corporation	Joffre, Alta , Canada	2812
3-	Arabian Petrochemical Company	Jubail, Saudi Arabia	2250
4-	Exxon Mobil Chemical Company	Baytown, Tex	2200
5-	Chevron Phillips Chemical Company	Sweeny - Tex	1950
6-	Dow Chemical Company	Terneuzen, Netherlands	1900
7-	Ineos Olefins & Polymers	Chocolate Bayou, Tex	1800
8-	Equistar Chemicals LP	Channel view , Tex	1752
9-	Yanbu Petrochemical Company	Yanbu, Saudi Arabia	1750

Source:
Oil & Gas Journal,1, Jan 2015

Table 3-10

World Ethylene Capacity by Region, 2014 and 2015

(Thousand tons at the end of the year)

	2014	2015	Difference	(%) Change 2014/2015
Africa/ Middle East	26007000	275507000	1,500,000	5.77
Asia/Pacific	45701000	45455000.0	-246.000	-0.54
Eastern Europe/CIS	24918265	22745265.0	-2.173.000	-8.72
North America	35035926	35045780.0	9,854	0.03
South America	6383500	5038500.0	-1,345.000	-21.07
Western Europe/CIS	7971000	7971000.0	0	0.00
Total	**146,016,691**	**143762545 .0**	**-2,254,145.0**	**-1.54**

Source:
Oil&Gas Journal, 7 July 2014 & 6 July 2015

Table 3-11

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	527	25
Austria	500	500	0
Azerbaijan	330	330	0
Belgium	2460	2230	-230
Brazil	3500	3500	0
Bulgaria	400	400	0
Canada	5531	5236	-295
China	13778	13878	100
Colombia	100	100	0
Croatia	90	90	0
Czech Republic	544	544	0
Egypt	330	330	0
Finland	330	330	0
France	3373	3050	-323
Germany	5757	5757	0
Greece	20	20	0
India	3315	3420	105
Indonesia	600	600	0
Iran	4734	4734	0
Italy	2170	1420	-750
Japan	6935	6645	-290
Kazakhstan	130	130	0
Kuwait	1650	1650	0
Kuwait	1650	1650	0

/.Cont

Table 3-11 Cont.

World Ethylene Production Capacity by Country, 2005 and 2006

(Thousand tons /Year)

Country	2012	2013	Change
Libya	350	350	0
Malaysia	1723	1723	0
Mexico	1384	1384	0
Netherlands	3965	4037	72
Nigeria	300	300	0
North Korea	60	60	0
Norway	550	550	0
Palestine	200	200	0
Phillipenes	0	320	320
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	5380	3980	-1,400
Slovak Republic	220	220	0
South Africa	585	585	0
South Korea	5630	5630	0
Spain	1430	1280	-150
Sweden	625	625	0
Switzerland	33	33	0
Taiwan	4006	4540	534
Thailand	3172	3532	360
Turkey	520	588	68
UAE	2050	3550	1500
UK	2855	1995	-860
Ukraine	630	630	0
USA	28121	28426	305
Uzbekistan	140	140	0
Venezuela	1900	1900	0
Total	**145,972.00**	**143,763**	**-2,209**

Source:
Oil&Gas Journal, 7 July, 2014

Table 3-12

Top 10 Ethylene Producers
Jan 2015

Company Name	No. of Sites	Production Capacity (Thousand tons/Year)	
		of entire Complexes	With only Company Partial interests
1 - Exxon Mobil Corp.	19	15013000	8448550
2 - Saudi Basic Industries Corp.	15	13392245	10273759
3 - Dow Chemical Co.	21	13044841	10529421
4 - Royal Dutch Shell Plc	13	5358385	6146693
5 - Sinopec	13	7895000	7275000
6 - Total AS	11	5610000	3472
7 - Chevron Phillips Petrochemical Co.	8	5607000	5352
8 - Lyondell Basell	8	5200000	5200
9 - Iran National Petrochemical	7	47340000	4734
10 - Ineos	5	4316000	3946000

Source:
- Oil & Gas Journal, 6 July, 2015

Table 3-13

Ethylene Production Capacity in the Arab Countries, 2011-2015

(Thousand tons/year)

	2011	2012	2013	2014	2015
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	2520	2520	2520	2520	2520
Saudi Arabia	13155	13155	13155	13155	13155
UAE	600	2050	2050	2050	3550
Total	18858	20308	20308	20308	21808

Source:
Oil & Gas Journal, 26 July 2010, 6 July 2011, 2 July 2012, 1July 2013 & 7 July, 2014

Table 3-14

Natual Gas Consumption by Region, 2013 and 2014

(Billion cubic meters)

	2013	2014	(%) Change* 2014/2013
Africa	120.3	120.1	(0.10)
Asia/Pacific	665.3	678.6	2
Central & South America	168.4	170.1	1
Europe & Eurasia**	1060.8	1009.6	(4.8)
Middle East	437.7	465.2	6.3
North America	928.5	949.4	2.5
Total	**3381**	**3393**	**0.4**

*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 2015

Table 3-15

Evolution of Natural Gas Share of Total Primary Energy Consumption by region, 2011-2014

(%)

	2011	2012	2013	2014
Africa	26.7	27.5	26.5	25.7
Asia/Pacific	11.2	11.3	11.5	11.4
Central& South America	21.7	22.2	22.1	22.1
Europe&Eurasia*	33.9	33.1	32.8	32.1
Middle East	48.8	48.6	49.7	50.6
North America	28.3	30.1	30.2	30.7
Total	**23.8**	**23.9**	**23.8**	**23.7**

* CIS , Europe and Turkey represented by Europe & Eurasia.

Note:

Shares of total are calculated in million tonnes oil equivalent figures

Primary energy comprises commercially traded fuels including modern renewables used to generate electricity

Source:

- BP Statistical Review of World Energy, June 2012 , June 2013 , June 2014 and June 2015

Table 3-16

Natural Gas Exports by Region, 2013 and 2014

Billion cubic meter

	2013	2014	(%) of Total	(%) Change* 2014/2013
Asia/Pacific	**122.6**	**129.9**	**13.0**	**6.0**
Of which: Australia	30.2	31.6	3.2	4.6
Brunei	9.5	8.3	0.8	(12.6)
Indonesia	32.4	31.2	3.1	(3.7)
Malaysia	34	33.8	3.4	0.0
Myanmar	8.5	9.5	1.0	11.8
Africa	**84.70**	**82.8**	**8.3**	**(2.2)**
Of which: Algeria	43.7	40.8	4.1	(6.6)
Egypt	3.9	0.7	0.1	(82.1)
Libya	5.2	6.0	0.6	15.4
Nigeria	22.4	25.3	2.5	12.9
FSU	**293.4**	**271.2**	**27.2**	**(7.6)**
Of which: Russia	226.2	201.9	20.2	(10.7)
Others	67.20	69.3	6.9	3.1
Middle East	**163.4**	**160.5**	**16.1**	**(1.8)**
Of which: Oman	11.50	10.6	1.1	(7.8)
Iran	9.4	9.6	1.0	2.1
Qatar	125.5	123.5	12.4	(1.6)
UAE	7.4	8.0	0.8	8.1
North America	**123.4**	**117.3**	**11.8**	**(4.9)**
Of which: Canada	78.9	74.6	7.5	(5.4)
USA	44.5	42.7	4.3	(4.0)
South America	**44.0**	**42.9**	**4.3**	**(2.5)**
of which: Trinidad & Tobago	19.8	19.3	1.9	(2.5)
Others	24.2	23.6	2.4	(2.5)
Westerm Europe	**201.3**	**192.6**	**19.3**	**(4.3)**
Of which: Norway	106.2	106.4	10.7	0.2
Netherlands	51.5	44.6	4.5	(13.4)
UK	9.0	10.6	1.1	17.8
Total	**1032.80**	**997.20**	**100.00**	**(3.45)**

Source:
- BP Statistical Review of World Energy, June 2014 and June 2015

Table 3-17

World Natural Gas Exports by Region, 2013 and 2014

(Billion cubic meters)

	2013	(%)	2014	(%)
A- Exports by Pipelines.				
Africa	38.1	5.4	34.3	5.2
Asia/Pacific	26.7	3.8	29.5	4.4
Europe	192.4	27.2	179.1	27.0
FSU	279.1	39.4	256.7	38.7
Middle East	29.3	4.1	29.6	4.5
North America	123.3	17.4	116.9	17.6
South America	18.6	2.6	17.8	2.7
Total World Exports by Pipelines	707.5	100.0	663.9	100.0
B- LNG Exports				
Africa	46.6	14.3	48.5	14.6
Asia/ Pacific	96.0	29.5	100.4	30.1
Europe	8.9	2.7	13.5	4.1
FSU	14.2	4.4	14.5	4.4
Middle East	134.1	41.2	130.9	39.3
North America	0.1	0.0	0.4	0.1
South America	25.4	7.8	25.1	7.5
Total World LNG Exports	325.3	100.0	333.3	100.0
Total World Gas Exports	**1032.8**		**997.2**	
Exports by Pipelines/Total (%)	**68.50**		**66.58**	
LNG Exports/Total (%)	**31.50**		**33.42**	
Exports as LNG/ Total Exports (%)	**30.48**		**32.25**	

Source:
- BP Statistical Review of World Energy, June 2015

Table 3-18

Evolution of World Natrual Gas Prices*, 2010 - 2014

USD / MMBTU

	2010	2011	2012	2013	2014	(%) Change 2014/2013
Japan**	10.91	14.73	16.75	16.17	16.33	1.0
Canada	3.69	3.47	2.27	2.93	3.87	32.1
EU	8.01	10.49	10.93	10.73	9.11	(15.1)
UK	6.56	9.04	9.46	10.63	8.22	(22.7)
USA	4.39	4.01	2.76	3.71	4.35	17.3

* CIF: Cost+Freight+insurance
**LNG
Source:
- BP Statistical Review of World Energy, June 2015

Table 3-19

Distribution of LNG Namplate Production Capacity in the world, 2014

(MTPA)

	Nameplate Production Capacity (MTPA)	(%) of Global Capacity
Atlantic	**91.3**	**30.1**
Of which: Algeria	28.6	9.4
Angola	5.2	1.7
Egypt	12.2	4.0
Equatorial Guinea	3.7	1.2
Nigeria	21.8	7.2
Norway	4.3	1.4
Trinidad and Tobago	**15.5**	**5.1**
Middle East	99.9	32.9
Of Which: UAE	5.8	1.9
Oman	10.4	3.4
Qatar	77	25.4
Yemen	**6.7**	**2.2**
Pacific	112	36.9
Of Which: Australia	28.4	9.4
Brunei	7.1	2.3
USA	1.5	0.5
Indonesia	29.9	9.9
Malaysia	24.2	8.0
Perú	4.45	1.5
Papua New Guinea	6.9	2.3
Russia	9.55	3.1
Total	**303.20**	**100.0**

Sources:
- GIIGNL ,the LNG industry in 2014
- IGU world LNG report-2015 edition

Table 3-20

Distribution of LNG Nameplate Production Capacity in the Arab Countries, 2014

(MTPA)

	Nameplate Capacity	(%) of Global Capacity
	MTPA	
Algeria	28.6	9.4
Egypt	12.2	4.0
Oman	10.4	3.4
Qatar	77	25.4
UAE	5.8	1.9
Yemen	6.7	2.2
Total	**140.7**	**46.4**

Sources:
- GIIGNL ,the LNG industry in 2014
- IGU world LNG report-2015 edition

ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES (OAPEC)

2015

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The Secretary General's 42th Annual Report

PART TWO

OAPEC ACTIVITIES IN 2015

Chapter 1

THE MINISTERIAL COUNCIL AND THE EXECUTIVE BUREAU

1-1 THE MINISTERIAL COUNCIL

The Ministerial Council convened its 94th meeting on 7 Shaban, 1436H, corresponding to 25 May 2015, 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 Sheikh Mishaal bin Jabr Al Thani, the Executive Bureau Representative of the State of Qatar heading the current term.

For details on the decisions taken by the Council this year, please refer to the press statements annexed to this report.

1-2 THE EXECUTIVE BUREAU

OAPEC Executive Bureau held its 141st meeting in Cairo, Egypt, on 23 and 24 May 2015 in preparation for the 94th OAPEC Council of Ministers' meeting (at the level of Representatives). Also, Executive Bureau held its 142nd meeting in the State of Kuwait, on 10 and 11 October 2015 to review the main discussion points on the agenda, and the recommendations and decisions which would be submitted to the Council of Ministers for deliberations and endorsement including OAPEC's 2016 projected budget (Secretariat General and Judicial Tribunal). Then, the 143rd meeting was held in Cairo, Egypt, on 17 and 18 December 2015 to prepare the agenda of the 95th OAPEC Council of Ministers' meeting.

Chapter 2

Secretariat General

First: Studies, Papers and Reports

OAPEC Secretariat General has implemented its annual program for 2015, including completion of technical and economic studies and research papers relevant to petroleum industries.

Following is a review of the Secretariat General's activities:

1- Studies:

1-1 Study on "The Role of Heavy Oil in Meeting the World's Energy Demand"

OAPEC Secretariat General released a study recently entitled "The Role of Heavy Oil in Meeting the World's Energy Demand". It aims at highlighting heavy oil, its resources, and its production methods in order to stress its important position among the different oils mix produced worldwide.

The study indicates that the growing oil demand is one of the most significant reasons that led to the increasing attention given to developing heavy oil resources worldwide. Technological development in all aspects of the petroleum industry helped facilitating heavy oil investments due to playing down a number of technical challenges that hindered heavy oil production.

The study explains that oil prices play a significant role in encouraging efforts on exploring various energy resources. It states that current conditions emphasize that fossil fuel resources will remain one of the most important resources of the global energy mix. This makes heavy oil part and parcel of the feedstock mix that feeds a large number of refineries worldwide.

The study reviews the differences between heavy oil and other crudes, including the percentage of light components compared to heavy components like asphalt found in heavy oil. This represents an additional burden on production, transportation, and refining, which is then interpreted in the form of higher costs and lower prices compared to light or medium oils.

The study draws the attention to the increasing impact of heavy oils over the energy markets now and in the future in light of the rapid changes in the world's energy scene governed by oil and gas price fluctuations on the one hand; and the increasing growth of the world's consumption market in general especially Asia and the Pacific in particular; in addition to the drop of European reserves on the other hand. The geopolitical developments also contribute to highlighting the role of such oils due to the disturbed conditions in some producing regions in the world. Moreover, some automatic technical factors lead to a drop in production rates in a number of giant fields.

The study concludes by stating that heavy oil projects in the Arab countries play an important role in producing heavy oil whether now or on the medium and long run, especially that current heavy oil production represents about 10% of the overall oil production.

The study stresses that the energy market instability causes concern among investors and hinders them from entering the heavy oil fields development projects. However; the growth in the medium and long term demand will accentuate the importance of heavy oil gradually, especially in the light of the drop in conventional oil production rates due to the maturity of fields and the natural decline of their production rates; in addition to the noticeable economic growth in East Asian countries.

1-2 OAPEC Study on Improving Performance and Profitability in the Oil Refining Industry

The study tackles challenges facing the oil refining industry, which contribute to reducing its profitability. It also enlisted the best solutions to face these challenges through applying programmes on

improving performance to enable the refineries produce high quality products at the lowest costs while maintaining the highest margins of profit.

The study made a number of conclusions including:

- Refineries' performance is affected by a number of factors including the refinery specifications, the state's economic situation, and the business environment in which the refinery operates.
- Increasing attention to improve production units' operation circumstances due to their vital role in improving a refinery's profitability.
- Increasing attention to apply health and safety programmes, and maximize equipment utilization due to their role in improving the safety of the production process and avoiding potential losses as a result of unscheduled emergency failures.
- The importance of boosting integration between the refining and petrochemicals industries due to its role in improving the profitability of both industries.
- Boosting cooperation between oil refining companies and Arab scientific research institutes, as well as, supporting scientific research activities on new technical inventions which contribute to improving the refining performance, especially downstream and hydrotreating processes that enable refineries to produce oil products conforming to domestic and international environmental requirements.
- It is necessity to meet the environmental legislations' requirements especially on product specifications, and measures to limit pollutants resulting from the refining process whether gas or liquid, as well as disposing solid waste in a safe way. This is in order to reduce the impacts of these legislations on the refinery profitability.
- In order to ensure the success of profitability improvement programmes, there should be a constant monitoring of some standards relevant to the refinery performance, like appraising production plan implementation, workplace injuries average, energy consumption, and the various operating costs.

- The importance of cooperation between national and international oil companies in executing joint ventures due to its role in boosting expertise exchange, risk sharing, and technology transfer among partners.

1-3 Study on "Role of Natural Gas in Achieving Sustainable Development in Arab Countries"

The study aims at shedding the light on the vital role played by natural gas to achieve sustainable development in the Arab region. It points out to the fact that the exploitation of natural gas resources did not get the required attention until very recently since investments were mainly focused on the oil sector. The Arab natural gas production has grown rapidly over the past three decades, where the Arab region recorded the highest growth rate worldwide. This boom also attracted investments in gas export projects through pipelines, and LNG plants in some Arab countries, creating another source of income-beside oil- to their national economies, and encouraging government spending on infrastructure projects, education and health, for the benefit of Arab societies.

The study is divided into three chapters; chapter-I shows the basic facts about the natural gas industry and its developments along the past three decades since the 1980s including proven reserves and production and consumption rates, and their implications externally and internally for the status of Arab countries (as major players) and their economic development.

Chapter-II addresses the UN initiative "Sustainable Energy for All" and its global action agenda launched in September 2011, and how natural gas can play an important role in several sectoral action areas, in line with the objectives of the Arab countries and their experiences in this regard. This includes continuing with adopting current policies to reduce gas flaring at oil production sites, and the use of natural gas as a cleaner and highly efficient fuel in the electricity sector, residential sector, or as a compressed fuel in light and medium duty vehicles. Chapter-III demonstrates the challenges

ahead facing the sustainability of the Arab energy mix which is dominated by fossil fuels by more than 99%. Moreover, it reviews current national policies and plans adopted by Arab countries to exploit renewable energy sources and studies the implementation of the peaceful use of nuclear energy.

1-4 Follow up Study on the Distribution and OAPEC Members Share of the Total Revenues of an Oil Barrel

The study consists of 6 main sections. Section 1 states the status of OAPEC members in the oil market, costs of the production and transportation of an oil barrel. Section 2 tackles the evolution of oil revenues in OAPEC member countries between 2003-2013. Section 3 gives an overview of major oil companies and their position in the global oil market. Section 4 reviews the capital expenditure evolution in these companies. It tackles the size of these companies' revenues and net profit from selling refined oil products. Section 5 highlights the revenues generated from taxes imposed on oil consumption in G7 industrialised countries. A comparison between the G7 industrialised countries and the revenues of major oil companies has been introduced in the last section of the study.

1-5 Unconventional Oil and Gas industry in North America: Reality, Future Prospects, and Implications for OAPEC Member Countries

The study aims in the first place at highlighting the current situation and future prospects of the unconventional oil and gas industry in North America and its implications for OAPEC member countries. Part 1 of the study gives an overview of the world's unconventional oil and gas resources including shale oil and gas. Part 2 covers the unconventional gas industry in the USA and its shale gas production development. Part 3 tackles the US unconventional oil industry; while part 4 focuses on the challenges and obstacles facing what is now has become to be known as the "Shale Revolution" in the USA.

Part 5 reviews the future prospects of the US oil and gas industry; while part 6 tackles unconventional oil and gas industries in Canada. The last part of the study talks about the future prospects of the unconventional oil and gas industry in North America and its implications for OAPEC members.

1-6 Energy subsidy policies in OAPEC member countries and their implications for national economies

The study aims in the first place at highlighting subsidy policies in OAPEC members and evaluating their impacts on national economies through 6 main pivots. They are: defining energy subsidy policies and their goals; size of subsidy in OAPEC members; historical development of domestic fuel prices in the member countries in comparison to the world; evaluating fuel subsidy policies in the member countries through reviewing consumption, the role of subsidies in determining consumption patterns, energy efficiency, rationalization policies; in addition to the impacts of subsidies on the general budget. The pivots also included presenting proposed solutions on fuel subsidy policies reforms in the member countries, and concluded by recommendations.

1-7 India's Energy Balance: Reality, Future Prospects, and Implications for OAPEC Members

The study aims at exploring India's energy balance and future predictions of its energy demand until 2040 and their implications for oil and gas exports in OAPEC members. The study covers 5 main points: India's energy balance; oil imports and exports; and implications of future energy demand in India for OAPEC petroleum exports.

The most important conclusion is that India is currently the fourth largest energy consumer in the world after China, USA, and Russia. It is expected that India's relative importance would grow in the coming years due to two reasons; growth in India's population and economy.

Due to the fact that India is a large market for OAPEC petroleum exports (crude oil, oil products, and natural gas) and its predicted future relative importance, the study recommends to focus on this promising market, especially that the concept of "energy security" for India as a consumer goes in line with OAPEC as an oil and gas producer and exporter in terms of supply and demand.

1-8 Energy supplies developments in Brazil: future prospects and implications for OAPEC members

The study aims at highlighting developments in energy supplies in Brazil, their future prospects, and their implications for both domestic and global markets including OAPEC members.

It is consisted of 6 main parts. Part 1 gives an overview of the energy mix in Brazil; part 2 tackles the development of oil and gas supplies in Brazil; and part 3 presents oil and gas developments at the Brazilian "pre-salt" area. Part 4 talks about the biofuel industry in Brazil; part 5 explores the future prospects of the energy supplies in Brazil, while part 6 states potential impacts on the global markets, especially OAPEC members. The study is concluded by some remarks and conclusions.

Most important conclusion is that since the 1970s, Brazil has been following a double strategy focusing on encouraging the increase of domestic oil production on the one hand, and reducing oil demand through developing biofuel as an alternative for oil on the other hand. It has exploited its "pre-salt" area that has drastically changed the Brazilian oil and gas industry. Brazil is a pioneer in the production and consumption of ethanol due to the massive governmental support.

As for potential impacts on the global markets, especially OAPEC members, Brazil's future increase in oil production for global markets depends on developments in its domestic demand to strike a balance between supplies and global demand. Also, the discovery of light oils, especially in the pre-salt area, gives Brazil a chance to diversify its exports to global markets. That would mean a greater competition against the member countries' oils in their main markets, especially Asia and Europe.

1-9 Natural gas in the energy mix and its future prospects in OAPEC members

The study aims basically to explore the status of natural gas in the energy mix in OAPEC member countries through shedding the light on its production, consumption, exports, imports, as well as, its future consumption predictions. The study includes four other topics covering: natural gas reserves in OAPEC members, its prices in global markets, and the investments needed for the development of the gas industry's infrastructure in OAPEC countries. The study presents conclusions and recommendations in its last section.

1-10 Global Oil Prices Developments and Potential Implications for OAPEC Member Countries

The study aims at analysing global oil prices developments from 2010 to 2015, influencing variables, and their implications for the global economy, especially OAPEC countries. It tackled the issue from 7 main angles: developments in basic goods in global markets; analysis of oil prices (2000-2015); previous major crises that led to drop in oil prices; factors influencing oil prices; future prospects for global oil markets; oil price changes and their implications for the economies of OAPEC members, consuming countries, and global oil companies; and finally, conclusions and recommendations.

2- Papers

2-1 Energy efficiency improvement plan at oil refineries

OAPEC Secretariat General presented a paper at the conference on "Options for Energy Conservation in the Oil Refining Industry" held in Manama, Bahrain, from 3 to 5 February 2015.

The paper gave a brief introduction on the most important energy resources and their uses in the oil refining industry, which tops other industries in terms of energy consumption. Refining accounts for over 52% of the total energy consumption in all the aspects of the

oil and gas industry. Therefore, it is important to implement energy conservation and efficiency in refining.

The paper shows the most important factors causing the increased consumption in oil refineries; on top of which comes refinery aging. In the past, due to cheap prices and absence of regulations on emissions, this issue was not considered. Moreover, refining techniques at that time were not as advanced as they have become in the past two decades. The second topic in the paper tackles the most important opportunities on reducing energy consumption and improving its efficiency. The paper also covered obstacles facing the implementation of energy efficiency improvement measures at oil refineries, the importance of using energy efficiency management systems, and the most important factors for their success.

2-2 Developments in cleaner fuel production at Arab oil refineries

The paper was presented at the International Conference on Refining and Petrochemicals held in Abu Dhabi, UAE, from 31 May to 3 June 2015.

The paper reviews the refining capacities in all OAPEC member countries and total refining capacities in the Arab countries (with 8.32 million b/d, and 62 refineries) representing 9% of the world's 90.85 million b/d and 647 refineries. OAPEC members' total refining capacity is 7.55 million b/d, representing 91% of the Arab countries, with 51 refineries. Non- OAPEC refining capacity is 0.772 million b/d, with 11 refineries at the end of 2014.

The paper also shows the development of petroleum products' specifications in the Arab countries in general between 2005-2014.

It then tackles the reasons behind the discrepancies between the Arab petroleum products specifications and their international counterparts; i.e. EU and US.

The paper also mentions that there are many refineries in the Arab countries capable of producing high quality petroleum products according to international standards, especially refineries exporting

to international markets, like: Ynabu', Sasref, SATORP in KSA; Midor in Egypt; Ras Laffan in Qatar; Ruwais in UAE; and Sohar in Oman.

The paper concluded by presenting some practical examples of clean fuel projects under construction in OAPEC members, which aim at producing petroleum products with the latest European standards (Euro-5). Kuwait's clean fuel project is a good example. It includes building a new refinery with a capacity of 615 thousand b/d, as well as, upgrading Mina Abdullah and Mina Ahmadi refineries. Shuaiba refinery has been shut down for good. Upon completion of the project scheduled in 2018, Kuwait's total refining capacity would increase from 936 thousand b/d to 1415 thousand b/d.

Here are some of the most important conclusions and recommendations:

- Most of the Arab refineries have made noticeable efforts to improve their capacity to produce cleaner fuel. More is needed to be done.
- Advanced technology contributes to helping oil refineries to combat the obstacles they face when producing cleaner fuel.
- Arab refineries' adherence to strict international standards concerning petroleum products contributes to the improvement of the refining industry's efficiency in the region, especially those exporting to international markets.

2-3 Motives behind Cooperation between National and International Oil Companies in Downstream Projects in OAPEC Member Countries

The paper was presented at the International Conference on Refining and Petrochemicals held in Abu Dhabi, UAE, from 31 May to 3 June 2015.

The paper's introduction reviewed the size of cooperation between national oil companies in OAPEC countries and international oil companies in the downstream industries. It highlights the current situation and joint ventures' plans in OAPEC countries, where

domestic oil refining joint ventures represent 23% of the total domestic refining capacity of 7.5 million b/d in the beginning of 2015.

Most of the joint ventures are in KSA that has refineries with a total capacity of about 2.5 million b/d, 5 of which are owned and operated by national companies while the other 4 refineries are joint ventures between national and international companies. The remaining joint ventures are found in Al Fujairah refinery, UAE, with a refining capacity of 85 thousand b/d, Ras Laffan refinery, Qatar, with a refining capacity of 146 thousand b/d, and Adrar refinery, Algeria, with a refining capacity of 13 thousand b/d.

Cooperation between national and international oil companies in OAPEC members is not limited to establishing domestic refineries, it extends to having joint ventures in Europe, Asia-Pacific, and the USA. These joint ventures are in KSA, Kuwait, and the UAE.

National and joint petrochemicals projects in OAPEC countries are mostly owned by joint ventures except in Egypt, Algeria, and Iraq, where they are owned by national companies.

The paper also tackles motives behind the cooperation between national oil companies in OAPEC and their international peers in downstream projects, including:

1. Gains of OAPEC countries' national oil companies when cooperating with their international peers
2. International oil companies' gains when cooperating with national oil companies in OAPEC countries

The paper then gives examples of such projects. Then it presents the following conclusions:

- The oil refining and petrochemicals industry is going though one of its most interesting phases of its history and needs new methods for doing business
- National and international oil companies are facing common challenges that call for full capacities and skills
- Joint ventures between national and international oil companies can make greater economic growth in the long run for both parties through sharing risks and fair gains.

- Oil market disturbances can be reduced through cooperation between national and international oil companies through investing in downstream projects whether locally or externally
- International petroleum companies, with their special and integrated capacities, can contribute to adding value to national companies in many regions
- Successful joint ventures between national and international petroleum companies are a result of concentrating efforts by all parties to achieve their ultimate goals.

2-4 Session on "Exploring the Future through the Magic Ball"

The Secretariat General took part in this session at the International Conference on Refining and Petrochemicals held in Abu Dhabi, UAE, from 31 May to 3 June 2015.

The session tackled:

- Challenges facing the downstream industry from the operators' and policy-makers' perspective
- Opportunities on improving downstream industries in light of the current falling oil prices in the world markets and their implications for the investment in the industry's development projects
- The importance of cooperation between national and international companies in establishing joint ventures
- Factors behind the success of joint ventures between national and international companies
- Implications of the transformation of the most important consumer into an important competitor, like China that reduced its petrochemical imports which would lead Japan and South Korea to look for alternative markets for their exports.
- Predicted impacts resulting from potential quick changes in the oil market, petroleum and petrochemical products in the next 10 years.
- Impact of dropping oil prices and the availability of coal at cheap

prices in China on choosing the most suitable feedstock and measures to be taken by companies to handle the new situation.
- Motives behind cooperation between national and international companies in downstream industries.

2-5 Paper presented to the "15th Meeting of Gas Experts"

The Secretariat General took part in this meeting and presented a paper on the cooperation in natural gas investments in OAPEC members, held in Kuwait on 12 and 13 October 2015, with the participation of 23 experts from OAPEC members and the Secretariat General.

The paper covered the Secretariat General activities in the interval between the 14th and 15th meetings on following up on natural gas issues both on an Arab and international levels. Also, it highlighted the most important developments in the natural gas industry in OAPEC members, as well as, a number of important regional developments in the gas industry, including the great gas discoveries in the Middle East that indicate the presence of more than 75 trillion scf and their implications on regional and international levels.

3- Reports

1-3 Report on "50 Years of Global LNG Industry and Trade"

The report has tackles the launch of LNG and the most important Arab and international spotlights since it began in 1964. It also includes:
- Historical moments for LNG industry in the Arab countries
- Current global LNG scene
- Japan and its vital role in the growth of global LNG trade
- Future prospects of the LNG trade
- The role of Arab countries and balance in the Arab scene

II. Conferences and Seminars Organized by the Secretariat General

2-1 Conference on Options for Energy Conservation in the Oil Refinery Industry

In line with its approved plan for 2015, OAPEC Secretariat General organized a conference titled 'Options for Energy Conservation in the Oil Refining Industry', in Bahrain from 3 to 5 February 2015 under the kind patronage of Bahrain's Minister of Energy HE Dr Abdul Hussain bin Ali Mirza, in cooperation with Japan Cooperation Centre Petroleum (JCCP) and National Oil and Gas Authority (NOGA).

The conference aimed at highlighting key energy conservation themes, procedures in oil refineries and improving environmental legislations, challenges in the Arab countries, stages of implementation of energy conservation programs, opportunities, and case studies on rationalization of energy consumption in oil refineries.

Oil refining experts at OAPEC countries took part in the event, as well as, some Arab research centres, Japan Cooperation Centre Petroleum (JCCP) and a number of Japanese companies.

The themes discussed included:

- General goals and benefits from implementing energy conservation at oil refineries
- Challenges facing energy conservation at Arab refineries
- Energy conservation program stages at oil refineries
- Energy conservation opportunities and efficiency improvement at Arab refineries
- Practical examples
- Environmental impact of oil refining and possible solutions

The conference delegates were taken in a tour for the Bahrain Petroleum Company (Bapco) and the historic Oil Museum of Bahrain.

Conclusions and recommendations

- Oil refining is the most energy consuming industry compared to the other stages of the oil and gas industry
- Energy management program's implementation enables a refinery to adapt energy conservation at all units
- Strategic and operational planning is the most important factor for the success of energy efficiency program
- The absence of legislations on emissions polluting the environment, and lack of accountability on cost management weaken responsibility towards adopting energy conservation measures
- Practical experiments proved the feasibility of energy conservation programs
- Precautionary and regular maintenance of oil refineries help reducing energy on a large scale
- New technology improves energy efficiency in refining operations
- Importance of cooperation and knowledge exchange
- There are always opportunities to excel

2-2 Fourth Coordinating Meeting for OAPEC Databank Communications Officers

OAPEC Secretariat General held its Fourth Coordinating Meeting for OAPEC Databank Communications Officers on 19 and 20 April 2015 at the organization's headquarters in Kuwait. OAPEC Secretary General HE Abbas Ali Al Naqi inaugurated the meeting with a speech welcoming the participants to Kuwait and wishing them success.

The meeting aimed at following up and reviewing earlier recommendations issued by previous coordinating meetings, evaluating OAPEC member countries data flow mechanism, discussing the system's earlier stages technical gaps and statistical shortages, as well as, hearing remarks and future visualizations on developing the system's application to meet the member countries' needs.

During the meeting, a briefing was given to the new communications officers attending for the first time on: the Secretariat General's

databank establishment and development, the structure of the energy data collection form, and the system's mechanism via the Secretariat General electronic website. The meeting provided an opportunity for all participants to exchange views on methods for developing and activating even further the Secretariat General's system. The meeting came up with a number of recommendations, most important of which are:

- Continuing to provide the Secretariat General with oil, natural gas, and other energy resources data and statistics while working on overcoming any obstacles preventing smooth access to these statistics.
- Synchronizing data received by the organization with those presented to other international organizations.
- OAPEC member countries should provide the Secretariat General with any latest statistical publications on energy, which are issued by official authorities in the respective countries.

2-3 The 23rd Forum on the Fundamentals of Oil and Gas Industry reviewed Current Developments in the World and Arab Petroleum Industry

OAPEC Secretariat General held the 23rd Forum on the Fundamentals of Oil and Gas Industry, from 4 to 7 October 2015, at its headquarters in the State of Kuwait. The event was attended by 43 participants from some OAPEC member countries including Bahrain, Saudi Arabia, Kuwait and Qatar, in addition to the Secretariat General participants.

The forum aimed at informing those working in the Arab oil industry in the member countries from the middle management about the various aspects and activities of the oil and gas industry. It also aimed at helping them develop their capabilities and broaden their professional and occupational horizons through knowing the various stages of this industry including exploration, production, refining, and transportation. The event also highlighted economic,

environmental, and media aspects relevant to the industry. A brief narration on OAPEC and its joint ventures has also been presented.

The programme included 12 lectures presented by petroleum specialists from inside and outside OAPEC Secretariat General. The lectures focused on 4 pivotal points: technical, economic, media, and environmental. Following is a summary of the events of **the 23rd Forum on the Fundamentals of Oil and Gas Industry.**

2-4 The 15th Meeting of Experts on Gas Investment Cooperation

OAPEC Secretariat General held the meeting at its headquarters on 12 and 13 October 2015. 23 participants took part in the event as follows: Bahrain (2), KSA (2), Iraq (3), Qatar (2), Kuwait (130, AND THE Secretariat General (4).

The Secretary General welcomed the participants underscoring the organisation's appreciation for the member countries' keenness on Arab cooperation. He also stressed the Secretariat General's keenness on following up all Arab and international natural developments. He presented some important natural gas industry's indices during 2014 as global demand dropped with a growth rate of 0.4%. demand for gas kept falling in EU countries for the second consecutive year. However, natural gas production grew by 1.6%, lower than its rates for the past 10 years. Gas trade has also dropped by 3.4% while Arab domestic demand grew in some gas exporting countries in 2014 which affected their total exports that dropped by about 8 billion scm compared to 2013. Natural gas exports form Arab countries represent about one fifth of the world's total trade.

The Secretariat General presented a paper on its activities in the interval between the 14th and 15th meetings on following up on natural gas issues both on an Arab and international levels. Also, it highlighted the most important developments in the natural gas industry in OAPEC members, as well as, a number of important regional developments in the gas industry.

III. Conferences and Seminars attended by the Secretariat General

3-1 The 16th Kuwait-Japan Joint Symposium

Upon a kind invitation by Kuwait Institute for Scientific Research (KISR), OAPEC Secretariat General took part in **the 16th Kuwait-Japan Joint Symposium,** held at KISR headquarters, Ahmadi, Kuwait, on 13 and 14 February 2016, under the slogan "Advancement in Petroleum Industries". The event was co-organized by KISR, Kuwait National Petroleum Company (KNPC), Japan Petroleum Institute (JIC), and Japan Cooperation Center, Petroleum (JCCP).

3-2 Kuwait International HSE Conference and Exhibition (KIHSE)

Under the auspices of HE Dr Ali Saleh Al Omair, Minister of Oil and Minister of State for National Assembly Affairs, Kuwait Petroleum Company (KPC) has organized Kuwait International HSE Conference and Exhibition (KIHSE) under the slogan "We Can Make Change Happen", on 16-17 February 2015, with the participation of HSE experts. The conference aims at boosting Kuwait's commitment to the highest health, safety and environment standards. It also seeks to establish the concept of an environment- friendly society.

OAPEC Secretary General HE Abbas Al Naqi took part as a keynote speaker in the conference. In his speech, he showcased OAPEC members' measures to improve their commitment to reduce emissions, protect the environment and minimize workplace accidents in all plants and facilities. HE Al Naqi also talked about the role of OAPEC member countries at the United Nations Framework Convention on Climate Change (UNFCCC) negotiations. He said that while following up the developments of the international UNFCCC negotiations, OAPEC has been stressing the importance of observing the general guidelines of the agreement on top of which fair and common but differentiated responsibilities, and the right to

achieve sustainable development according to developing countries' national priorities and development strategies.

3-3 International Refining and Petrochemical Conference (IRPC) 2015

OAPEC Secretariat General took part in the International Refining and Petrochemical Conference (IRPC) held under the sponsorship of TAKREER, between 31 May and 3 June 2015, in Abu Dhabi, United Arab Emirates. Experts from OAPEC member countries and other Arab and foreign organizations attended the event. The conference discussed the latest developments in oil refining, petrochemicals, and natural gas treatment and production. OAPEC Secretariat General presented two papers at the conference:

- **Paper 1:** "Cleaner Fuel Production at Arab Oil Refineries"
- **Paper 2:** "Cooperation Motives for National and International Oil Companies in Downstream Projects at OAPEC Member Countries"

The conference concluded with issuing a number of recommendations stressing the importance of scientific cooperation and coordination between scientific research centers and national and international oil companies.

3-4 Fifth InterEnerStat Workshop

The Secretariat General took part in the event upon an invitation by the International Energy Agency (IEA), held in Paris from 14 to 15 September 2015.

The workshop aimed at enhancing cooperation between the IEA's InterEnerStat team and other international organisations specialized in energy statistics.

3-5 6th Asian Ministerial Energy Roundtable in Qatar

OAPEC Secretariat General participated in the 6th Asian Ministerial Energy Roundtable (AMER6) in Doha, Qatar from 8-10

November 2015 upon a kind invitation by HE Mohammad bin Saleh Al Sada, Minister of Energy & Industry, State of Qatar. It was held under the patronage of the Emir of Qatar HH Sheikh Tamim bin Hamad bin Khalifa Al Thani. Official delegations headed by their Excellencies energy and petroleum ministers in the Asian countries, and their Excellencies chiefs of international and Arab energy and petroleum organizations took part in the event.

The key issues discussed included the current status and future trends of the global oil market and demand, the future of natural gas and coal industries and supplies, as well as, renewables and their impact in Asia.

At the end of the conference, HE Mohammad bin Saleh Al Sada Minister of Energy & Industry, State of Qatar, delivered a speech in which he mentioned that participants in the meetings have come to an agreement on a number of points including:

- The countries' right to develop in line with their people's aspirations for a better life.
- The importance of energy security as a basic cornerstone for any dialogue on economic development.
- The importance of cutting emissions and the important role of natural gas as a source of clean energy in the transition stage towards a decarbonized world.

The Minister also referred to the Saudi proposal to establish an Asian Energy Efficiency Knowledge Sharing Framework, and welcomed the UAE's hosting of the next Asian Ministerial Energy Roundtable meetings.

3-6 Second Energy Management Conference and Exhibition 2015

In response to an invitation by Bahrain's National Oil & Gas Authority (NOGA), OAPEC Secretariat General took part in the 2nd Energy Management Conference and Exhibition 2015, from 6 to 8 December 2015 in Bahrain under the kind patronage of Bahrain's Energy Minister HE Dr Abdul Hussain bin Ali Mirza. The event's

slogan was "Sustainable Energy in the Developing Countries".

Bahrain's Energy Minister HE Dr Abdul Hussain bin Ali Mirza opened the event with a speech praising the initiative of the Crown Prince HRH Prince Salman bin Hamad Al Khalifa on the sidelines of COP21 in Paris, where he announced Bahrain's readiness to host the regional hub for the Green Climate Fund to serve West Asia. The Minister pointed out to the coincidence of holding this conference and the COP21 simultaneously and the important dialogue between the decision makers worldwide. The Minister said that in spite of holding the events in two different cities, they were interrelated with regards to importance and solutions. He clarified that sustainable development was key for strategic planning for any country; it depends on the countries' success in energy management and all aspects of development whether social, economic, or environmental.

The conference tackled various important issues including climate change, environment, energy efficiency in industry, constructions, and renewable energies in addition to other issues relevant to the energy sector. These issues were discussed over six technical sessions and two open dialogue sessions.

IV. Environment, Climate Change, and Sustainable Development: OAPEC Role

OAPEC Secretariat General has been giving environment, climate change, and sustainable development 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.

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, the coordinating meeting for OAPEC environmental experts, and the COP21. Here is a review of these issues in 2015:

First: SBI 42 – UNFCCC, SBSTA 42 – UNFCCC, and ADP- 9

The Secretariat General took part as observer in the new round on the 42nd session of the Subsidiary Body for Implementation, the 42nd session of the Subsidiary Body for Scientific and Technological Advice (*SBSTA*), and the ADP (Ad-hoc Working Group on the Durban Platform for Enhanced Action) session that were held from 1 to 11 June 2015 in the World *Conference* Center in Bonn, Germany.

Most important outcomes of the round:

1. **ADP-9 considered Geneva's February 2015 text still the official document for negotiations. Any other documents are deemed unofficial. The Geneva text contained the following:**

    - The goal of the agreement- loss and damage- mitigation- funding- technology transfer development- capacity building- transparency- introduction and definition- time framework- implementation and commitment- institutional resolutions and measures

- Enhancing bridging the gap in emission-related issues before 2020
- Chairman reaffirmed that the Geneva text is still the only official document. The co-chairmen would prepare additional texts without cancelling or deleting any country's options or stances in the new text.

2. **SBI endorsed the agenda and approved various points including:**
   - Submitting a request to the Secretariat General to update the relevant technical paper on reviewing the guidelines
   - Informing about some parties' contribution in the fund for the least developed countries and their progress, in addition to the technical support provided by the support programs and networks in order to put and execute national adaptation plans
   - Welcoming cooperation between climate technology centre and network with regional technology transfer and funding centres
   - Informing about Lima- Paris Action Plan showing the active non-governmental parties
   - Informing about Morocco's hosting of the COP-22
   - Inviting parties from Asia-Pacific to submit bids for hosting COP-23

3. **SBSTA endorsed the agenda and approved a number of points including:**
   - The importance of enhancing cooperation and ties between Nairobi Action Plan and other relevant action plans and authorities
   - Informing about the IPCC's 5th report and evaluating its outcome
   - The Secretariat General invited the IMO and ICAO to continue reporting on the work relevant to cutting emissions.

Second: 11th Meeting of Arab Negotiating Group

OAPEC took part in the meeting upon an invitation by LAS Secretariat General. The meeting was held in LAS headquarters, Egypt, on 11 and 12 October 2015. The goal of the meeting was to agree on specific recommendations on the Arab stance during the Paris Climate meeting in December 2015.

Third: 22nd Coordinating Meeting of Environmental Experts in the Member Countries

In implementation of the OAPEC action plan for 2015, the 22nd 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 some OAPEC member countries: Bahrain, KSA, Kuwait and Egypt, in addition to a representative from the League of Arab States.

OAPEC Secretariat General presented a paper on the developments of the UNFCCC. It included the outcome of the COP in Lima, Peru; a summary of the output of the UNFCCC discussions at Bonn Conference held from 31 to 4 September 2015; the features of the new proposed Paris 2015 Agreement, relevant international agreements and their potential implications; as well as, the stances of the negotiating countries and groups, and the Arab negotiating stance at the upcoming Paris COP 2015.

Fourth: COP-21 and Paris Climate Agreement

Upon an invitation by the UNFCCC Secretariat, OAPEC Secretariat General took part- as observer- in the twenty-first session of the Conference of the Parties (COP-21) and the eleventh session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP11) that took place from 30 November to 11 December 2015, in Paris, France.

The Secretariat General HE Abbas Al Naqi headed OAPEC delegation. The COP-21 endorsed the Paris Agreement with the consensus of 195 countries. It is an ambitious and binding global agreement. It will be deposited at the UN in New York and opened for signature for one year on 22 April 2016. The agreement will enter into force after 55 countries that account for at least 55% of global emissions have deposited their instruments of ratification. The new agreement on climate change will replace the Kyoto Protocol that will expire in 2020.

Most important features of the Paris Agreement:

- It is decided to form a specialized team on the Paris Agreement under the name "Paris Committee" after making the required amendments to electing the office members, etc. It should submit regular reports on the work progress. Work has to be completed before the first session of the CMP as a COP in the Paris Agreement. Its sessions should start in 2016 simultaneously with the Agreement sub-committees' sessions.
- Realizing a long-term goal of keeping the increase in global average temperature to pre-industrial levels, while maintaining the efforts to limit the increase to **1.5°C.**
- Developed countries committed to provide sufficient support to help developing countries protect the environment. They should work on a clear roadmap on providing a funding of $100 billion by 2020, while encouraging other parties (individual countries or a group of countries) to provide support on a voluntary basis.
- Boosting international cooperation on environment- friendly techniques, and building the capabilities of developing countries to face climate change.
- Countries should submit their national climate action plans (INDCs), with a mechanism to review their INDCs every five years; as these INDCs remain optional. There will be a compulsory review in 2025; as following reviews should show progress.
- The agreement also stresses transparency on mitigation and adaptation in developing countries and providing support

while recognizing that the less developed and small developing countries have special conditions.

- Boosting the existing Warsaw International Mechanism on Loss and Damage.
- Some technical issues have been concluded in addition to executing issues relevant to technology, adaptation, and work on building capacities successfully.
- OAPEC Secretariat General, in collaboration with the Saudi Ministry of Petroleum and Mineral Resources, held on 5 December 2015 a seminar on "The Role of Oil and Gas Technology in Facing Climate Change" on the sidelines of the COP21 in Paris.

The seminar aimed at presenting the oil and natural gas technology used in the Arab countries and its role in fighting the impact of climate change. It also highlighted how the CCS technology matured rapidly.

A number of scientific papers has been presented by the member countries as follows:

- UAE: "The Emirates Steel Project under the patronage of Riyadah". A joint venture between MASDAR and ADNOC, the first commercial facility in the Middle East adopting CCS. It is expected to capture 800,000 tons of CO2 –rich stream to recover oil.
- KSA: "Aramco's CO2 Project". A pilot carbon capture and enhanced oil recovery project for 40 million cubic feet of CO2 per day. It also highlights the pioneer nature of its observation and monitoring system.
- Qatar: "Gas Recovery Project". The project is expected to help recovering 29 billion cubic feet of gas per annum, which is sufficient to produce 750 MW to serve 300,000 households.
- Kuwait: "Limiting GHG to Conserve Energy".
- Egypt: "Egypt's Experience in using Vehicles operated by Compressed Gas". The project encourages taxis and private vehicles to shift to using natural gas which benefits consumers and environment alike. There are plans to increase using compressed natural gas during 2016-2019.

V. MEDIA ACTIVITY

The Secretariat General continued its media activities in 2015 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. Most important publications of the year 2015 have been the "10th Arab Energy Conference Proceedings" and the "23rd Forum on the Fundamentals of the Oil and Gas Industry Proceedings", both in book format.

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 and the meetings of the Executive Bureau. 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's electronic website has continued usual activities by showing the latest news on its news bar. It also provides those browsing its website with latest information and data on the oil and gas industry in the member countries and other Arab countries through a link to the organisation's databank and book lists at the library. A summary of the organisation's latest economic and technical studies is also provided.

One of the most significant additions in 2015 has been enlisting all studies, papers, and country-profiles presented at the 10th Arab Energy Conference on OAPEC website so that all those interested can have a look and get a copy.

5-4 Social Media

In order to facilitate direct communication with its audience, OAPEC Secretariat General has launched its Twitter and Facebook accounts, where the latest news and activities are highlighted. There has been good feedback so far from followers and those interested in the energy and petroleum industry.

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 2015 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 4th Coordinating Meeting for OAPEC Databank Liaison Officers during the period 19-20 April 2015 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 2015, covering the period 2010-2014, which was published as CDs and sent to member countries. It has also been uploaded on the Secretariat General's website. Energy Data publication was also prepared by the Databank, according to international groups, for the period 1975-2014, 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.

VII. OAPEC Award for Scientific Research 2016

In line with OAPEC policy on encouraging scientific research on petroleum industry, the organization launched the OAPEC Award for Scientific Research 2016 on the "Re-Refining of Used Lubricating Oil and its Economic & Environmental Implications." It allocated two prizes on a biennial basis (first prize KD7000 and second prize KD 5000). The award-winners would be honoured at OAPEC Ministerial meeting. It is open for all nationalities (Arabs and non-Arabs). A scientific arbitration committee, headed by the Secretary General HE Abbas Al Naqi, with members from OAPEC and other petroleum industry institutions would choose the winners.

The reason behind choosing this topic is OAPEC's interest in improving the petroleum industry via the efforts of its members. It will add value and maximise utilization of natural resources and potentials, as well as, boosting adherence to environmental-friendly legislations.

The deadline for submitting contributions was the end of May 2016, which was then extended to 15 June 2016. All terms and conditions are listed on OAPEC website www.oapecorg.org.

Amendment to the Award system

The Executive Bureau has issued resolution number 1/142 on 11/10/2015 on amending the Award system. It will be in force as of 2018.

VIII. ADMINISTRATIVE AND FINANCIAL ACTIVITIES

8-1 Evolution of the Administrative Structure

At the end of 2015 there were (40) employees working at the Secretariat General, (21) of whom were of the professional staff and (19) of the general staff.

8-2 Evolution of Actual Expenditure*

Expenditure in 2015 totaled KD 1,542,612.

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 have faced great challenges in 2014 and the first half of 2015 due to falling oil prices in the world markets. This has led to putting on hold or total stop of many petroleum projects in the Arab petroleum producing and exporting countries. Another challenge is represented in the unstable security conditions in the areas of operations of some companies, which has negatively affected their performance forcing them to stop work and evacuate their staff hoping for security conditions to improve.

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.

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 resolution number 1/6 on 13/06/2014 to increase its paid-up capital to $350 million.

- **AMPTC Activities in 2014 and the first half of 2015**

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 2 million tons/year LNG to Egypt, Sudan, Jordan, 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 spot markets, which is expected to continue making profits.

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 2 million tons/year. 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).

- **AMPTC Financial Results for the Financial Year 2014**

The company's 2014 revenues amounted to about $107.374 million, and the actual operating expenses, before tanker depreciation, stood at $67.858 million. Book depreciation of tankers amounted to nearly $23.048 million. Taking into consideration the administrative, financial, and general expenses, in addition to banks' financing interests, the net profit posted by the company amounted to about $63.197 million in 2014.

- **Company's Financial Results for the First Half of 2015**

Tanker operating income amounted to approximately $62.42 million, and the operating expenses were nearly $30.98 million. Meanwhile, book tanker depreciation amounted to about $11.39 million. Taking into consideration the administrative, financial, and general expenses, in addition to banks' financing interests, the company posted a net profit of about $59.49 million for the first half of 2015.

- **Staffing**

By the end of 2014, the company had 72 employees, including 44 Arabs. In mid-2015, it had 76 employees, including 48 Arabs.

In 2014, the fleet had 253 officers and engineers, including 149 Arabs. In mid-2015, it had 254 officers and engineers, including 151 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 2014**

The company has witnessed significant developments in 2014 in spite of the great competition in the ship repairing market regionally and globally, in addition to the geopolitical developments in the region. In 2014, the company's board of directors announced a roadmap to develop the company's future business. The roadmap is a strategy for the years 2015-2018, and acts as a guideline for the company's medium-run development. It includes a number of projects, most importantly:

- Building a new dry dock (the company's 4th)
- Expanding the scale of consultancy business
- Opening an office in the Eastern Province, KSA
- Restructuring the company's human resources
- 2014 has also witnessed two main events; which are: launching

Jupiter Initiative for the establishment of buildings and workshops for dock's contractors; and the restructuring of the company by merging some departments.

- **Financial Results 2014**

In 2014, the company generated total revenues of $163 million with a decline of 18% compared to 2013.

- **Training and Arabizing**

In 2014, ASRY organized various training programs for top, middle and supervisory management. The company held 984 miscellaneous professional training courses for 1623 employees.

By the end of 2014, the company had 737 Arab employees. Permanent employees were 1784. At peak times, the company outsources sub-contractors.

- **Activities in the First Half of 2015**

The company repaired 121 ships in the first half of 2015. Repair specifications received by the company amounted to 302.

- **Financial Results in the First Half of 2015**

The company achieved good results in the first half of 2015, with sales reaching $79,788,000 during this period compared to $92,602,000 for the same period in 2014. Net profits before EBITDA reached $3,739,000 compared to $7,392,000 the same period of 2014.

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 2014**

APICORP made a strong performance in 2014. It continued attracting new business opportunities by acquiring a share of 90% of the National Petroleum Services (NPS) worth more than $500 million. APICORP acquired 28% of the company.

APICORP has also sealed its first investment deal in the field of power generation by signing with ACWA Power.

During 2014, APICORP focused on prioritizing liquidity management, and reducing reliance on short-term funding. In this respect, the Corporation concluded three Shariah-compliant medium-term transactions totaling $1.2 billion during 2014, which enabled the refinancing of maturing debt in 2015 at highly-competitive prices.

- **Investment Activities**

Dividend income generated by the portfolio increased by 25.7% to $ 92.36 million from $73.37 million in 2013.

- **Project Funding**

In trade finance, APICORP concluded 15 transactions totaling over $608 million. Total income generated by corporate finance activities 2014 reached $58.74 million compared to $66.72 million in 2013. The average loan balance in 2014 remained stable at $ 2.94 billion compared with $3.06 billion the previous year.

- **Financial Results in 2014**

APICORP posted a net profit of $105.03 million in 2014, compared

to a net profit of $112.6 million in 2013. Total corporation assets have grown to $5.88 billion. Shareholders' total revenues reached $1.86 billion.

- **Project Finance Activity for the First Half of 2015**

In line with the new directives and to fulfill strategic goals, APICORP started executing 2 key projects in the beginning of 2015: firstly; recruiting international fund managers to manage part of the treasury investments, and secondly; forming a partnership with Standard Chartered via a midterm program in order to cut financing costs and extending investments.

- **Staff and Training**

Currently, APICORP employs about 120 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 (82 employees).

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 SERVICESCOMPANY (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. Tripoli, Libya, is designated as the company's headquarters.

- **APSCO's Activities in 2014**

The company's activity was focused on helping specialized companies to collect their debts/credit to pay for their commitments, as well as, trying to find opportunities outside the headquarters' country in light of the current difficult conditions. The companies are: the Arab Drilling and Workover Company (ADWOC), the Arab Well Logging Company (AWLCO), And the Arab Geophysical Exploration Services Company (AGESCO).

- **Financial Results for 2014**

APSCO's net loss for 2014 amounted to LD300,312. The net loss was carried forward to the retained earnings account, bringing the total retained losses to LD 2,025,643 on 31 December 2014.

- **Company Activity during the First Half of 2015**

The company continued to monitor and support the three existing companies. It also studied future projects.

H. 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 2014**

With the beginning of 2014, the company managed to overcome most of its problems resulting from the 2011 war in spite of the blurred situation and the difficulties in collecting its debt dues in the headquarters' country. In early 2014, the company managed to operate 14 rigs, however, due to increasing severity of the security disturbances, the company had to stop all its businesses in Libya.

W. 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.

- **Relations with the Iraqi Oil Ministry**

The Ministry of Oil continued to provide AWLCO with assistance to perform its business, as follows:

- 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.
- Endorsing contracts with: North Oil Company, BOC, Iraqi Drilling Company, Missan Oil Company, and MDOC.
- Covering for all the company's official correspondence when required.
- Providing the company with all forms of fuels

- Providing the required protection for storing and transferring hazardous substances.
- Storing hazardous substances in the warehouses of North Oil Company, BOC, and Missan Oil Company.

- **Training and Manpower**

The company conducted the following:

- Training 9 engineers on the operation and maintenance of open well loggers.
- Training 3 engineers on the operation and maintenance of cased well loggers.
- Re- training 5 engineers and technicians on well drilling operations

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.

In 2014, the company's staff were 71 employees.

- **Company Financial Results for 2014 and First Half of 2015**

By the end of 2014, the company's total revenues were $5,185,274 with a net profit of $318,340. In the first half of 2015, the company's revenues reached $3,359,838; with a net profit of $440,267.

X. 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 general assembly 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 2014**

The 2 Seismic Crews

The crews' productivity from 1 January till 31 July 2014 reached a total of 2769.09km^2 before ceasing their activities until this moment due to bas security situation in the headquarters' country.

- **Financial Results for 2014**

By the end of 2014, the company posted a net profit of LD2.693 million.

- **Manpower**

By the end of 2014 the company had 427 employees, out of whom 420 Libyans, 4 Arabs, and 3 foreigners.

Y. 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 2014**

The company's various activities have been negatively affected by the security situation at the company's areas of operation. During 2014, net sales were made, exceeding $29.7million. The company marketed 9242 tons of linear alkyl benzene. It also marketed its excess middle products like paraffin (about 3498 tons), BTX (about 307 tons), and other products8441) tons).

- **The Company's Financial Results in 2014**

The financial statements showed a total profit of nearly $6.2 million in 2014, compared to a total profit of about $3.6 million realized in 2013. Meanwhile, whole loss for the financial year 2014 was about $17.2 million, against a final profit of $2.2 million in 2013.

- **Manpower and Training**

By the end of 2014, the company had 345 employees, including 344 Iraqis and one Arab.

- **Company Activity during the First Half of 2015**

Unstable conditions continued to domain in the first half of 2015, so the company started taking various measures to cut expenditure until the security situation improves.

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The Secretary General's

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APPENDICES

PRESS RELEASES OF OAPEC MINISTERIAL COUNCIL MEETINGS IN 2015

94th Meeting of OAPEC Ministerial Council

(At the level of the Representatives)

Continuation of OAPEC Member Countries' Cooperation in Petroleum Industry

The Ministerial Council convened its 94th meeting on 7 Shaban, 1436H, corresponding to 25 May 2015, 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 Sheikh Mishaal bin Jabr Al Thani, the Executive Bureau Representative of the State of Qatar heading the current term.

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. HE Al Thani also welcomed HE Engineer Khaled Matar Al Ulaij, Assistant Oil and Mineral Resources Minister for Oil and Gas Affairs, as the Representative of the Syrian Arab Republic at the Executive Bureau, wishing him success as he was taking part for the first time in these meetings (at Representatives level). His Excellency extended thanks and gratitude to the Arab Republic of Egypt for the hospitality and constant support to OAPEC.

HE Abbas Ali Al Naqi, OAPEC›s Secretary General, welcomed their Excellencies the representatives of the member countries to the 94th Ministerial Council Meeting. HE Al Naqi expressed profound appreciation to Arab Republic of Egypt. The Secretariat General also welcome HE Engineer Khaled Matar Al Ulaij, Assistant Oil and Mineral Resources Minister for Oil and Gas Affairs, as the Representative of the Syrian Arab Republic at the Executive Bureau,

wishing him success as he was taking part for the first time in these meetings (at Representatives level). HE Al Naqi extended his thanks and appreciation to HE Engineer Sherif Ismail, Egypt's Petroleum and Mineral Resources Minister and all Ministry staff for their hospitality.

The Council began discussing points on the meeting agenda and approved the following items:

he Council approved OAPEC's financial statements (Secretariat General and Judicial Tribunal) for 2014.

- The Council also reviewed the activity report of OAPEC Secretariat General, adopted the Executive Bureau recommendations including the recommendations of the 10th Arab Energy Conference, and followed up on environment and climate change issues, the course of work at the databank, and annual program of seminars and meetings organized or attended by the Secretariat General.
- The Council also reviewed the economic and technical studies prepared by the Secretariat General during the first half of 2015.
- The Council concluded the meeting, expressing their thanks and appreciation to the Arab Republic of Egypt for the hospitality and quality preparations for the meeting.

Cairo: 7 Sha'aban 1436H, corresponding to 25 May 2015AD

Press Statement issued by the 95th Meeting of OAPEC Ministerial Council

OAPEC Ministerial Council held its 95th meeting, chaired by His Excellency Dr Mohammed S. Al Sada, Qatar's Energy and Industry Minister, Chairman of the current round, on 9 Rabi' Al Awwal 1437H, corresponding to 20 December 2015, in Cairo, Egypt.

His Excellency the Chairman opened the meeting welcoming Their Excellencies the Ministers and Heads of delegations. HE Al Sada also welcomed Algeria's Energy Minister HE Dr Saleh Khebri, and Egypt's Petroleum and Mineral Resources Minister HE Engineer Tarek Al Mulla, who are taking part in the Ministerial Meetings for the first time. The Chairman also extended sincere thanks and appreciation to Egypt for the hospitality and warm welcome, while wishing all success for the meeting. HE Al Sada stressed that the organization's ultimate goal has always been the cooperation among its members in the various activities of the petroleum industry.

The Chairman reviewed the global petroleum market conditions in general while hailing OAPEC's role and effort in organizing regional and international events to stress its presence and vital role in serving the organization's goals at the international forums.

Then the floor was given to HE Abbas Ali Al Naqi, OAPEC Secretary General, who welcomed their Excellencies the representatives of the member countries to the meeting, especially Algeria's Energy Minister HE Dr Saleh Khebri, and Egypt's Petroleum and Mineral Resources Minister HE Engineer Tarek Al Mulla, for taking part for the first time in these meetings. HE Al Naqi also thanked their predecessors for their efforts in supporting the organization's activities at these meetings throughout their tenures. He also expressed his thanks and appreciation to the Arab Republic of Egypt for hosting the organization's meetings (Ministerial Council and Executive Bureau) and for the hospitality and warm welcome, wishing Egypt further progress and welfare. HE Al Naqi concluded by wishing all success for the meeting.

Then, the Council approved the draft agenda, and deliberated its items as follows:

- The Council endorsed the minutes of the 94th Ministerial Council Meeting that was held in Cairo, Egypt, at representatives' level on 25/05/2015.
- The draft OAPEC projected budget for 2016 (Secretariat General and Judicial Tribunal) was approved.
- Tareq Al Osaimi & Partners were reappointed as OAPEC (Secretariat General and Judicial Tribunal) Auditors for 2016.
- Reviewing the reports on the General Secretariat's activities on:

  - Following up environment and climate change issues, most importantly the outcome of the COP-21 that endorsed the "Paris Agreement". The meeting lauded the agreement considering it a globally ambitious and binding agreement that will enter into force after 55 countries that account for at least 55% of global emissions have deposited their instruments of ratification. The new agreement should replace the Kyoto Protocol that will expire in 2020.
  - The 23rd Forum on the Fundamentals of the Oil and Gas Industry
  - Finalized studies prepared by the Organization during 2015
  - Databank progress and activity development
  - All activities which the Secretariat General organized or took part in during 2015
  - The Council reviewed the OAPEC Joint Ventures Activity Report in 2014 and the first half of 2015, and took note of the outcome of the 44th Coordinating Meeting of the Joint Ventures Officials held in Cairo on 29/10/2015.
  - 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 2016. The Council issued its decision number 3/95 in this regard.
  - According to article 13 of the organization's establishment

agreement, the chairmanship of the next round of the Ministerial Council will be assigned to the State of Kuwait

- - It was agreed to hold the next meeting in Cairo on 11 December 2016.
- - The Ministerial Council's Chairman sent a cable of thanks and gratitude on behalf of the Council to the Egyptian President HE Abdul Fattah El Sisi, appreciating Egypt's hospitality while hosting the meeting.

Cairo: 9 Rabi' Al Awwal 1437H, corresponding to 20 December 2015AD

ORGANIZATION OF ARAB PETROLEUM
EXPORTING COUNTRIES (OAPEC)