



## **Why, How Far and How Long**

### **Fall of Crude Oil Prices from US\$ 100/bbl to less than US\$ 30/bbl**

**Jan 2016**

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## 1. Oil Defines Our World

Oil defines our world – it can bring peace or war, poverty or prosperity.

Oil is a global commodity and has become a part of our daily life today. Other alternate sources like wind, solar, nuclear, thermal, hydro etc. provide energy in the form of electricity where as oil additionally provides “speed” in the form of fuel for automobiles, ships and planes and it is a raw material for more than 100,000 products that we use in our daily life. Today oil represents 34% of world energy demand and it is not easily replaceable in the foreseeable future unless a cost effective alternate source is developed.

At the current oil prices of around US\$ 30/bbl, the economics of oil exporting countries and financial markets is suffering grievously. Although the oil importing countries are benefitting from the low prices as compared to the US\$ 100/bbl level in the last 5 years, the benefits cannot be determined in the short term as the financial markets are badly affected across the world.

### Oil Shocks

Starting with the Arab oil embargo to export oil to the US, the world has experienced the extreme effects of oil shocks and its influence in our daily life.

#### Arab Embargo – 1973

In October 1973, the Organization of Arab Petroleum Exporting Countries (OAPEC) declared a ban on oil export to the US for supporting Israel in the Yom Kippur War with Egypt, Jordan and Syria. The oil prices soared by more than 400% from US\$ 2.90/bbl to US\$ 11.65/bbl by early 1974. This created one of the worst recessions and spiked inflation worldwide but more especially in the US. This embargo seriously damaged the trust in OPEC as a reliable exporter of oil and America's entire energy security policy of the future including a ban to export indigenous crude were casted by that experience.

#### Iranian Revolution – 1979

The second major oil shock was experienced in 1979 when Shah of Iran was overthrown by Ayatollah Khomeini by Iranian Revolution. The revolution caused Iran's oil output to decline by almost 4.5 million barrels of oil per day. Fear of continued disruption amidst a growing world economy pushed the oil prices up almost doubling the price by early 1980. Shah was considered to be pro-US and with Khomeini rising to the power, the US-Iran relationship became a thorn from that day until today. Khomeini denounced US calling it as “Great Satan” and “Enemy of Islam”. Within few months of Khomeini's regime, in November 1979 Iranian students seized the American Embassy in Tehran detaining more than 50 Americans as hostages. The Iranians held them hostages for 444 days. America immediately imposed strong economic sanctions against Iran. A bold attempt by the US to rescue the hostages ended as a debacle. Iranians made a big show of the rescue failure in the world television. Following the death of Shah in the US and Iraq declaring war against Iran, Khomeini became more amenable for negotiations as he needed warfare to fight Iraq.

Although the hostages were freed by continued diplomatic efforts, the then Carter's Administration was considered to be weak and ineffective.

Russia made gains in this troublesome period in the middle of the cold war and invaded Afghanistan in 1980 to support their puppet Marxist Government.

The disturbance in the Middle East in 1979-1980, apart from triggering another oil shock, created a significant impact on world politics in the middle of the cold war era whose effects are reverberating even today.

### **Iraq and Iran War – 1980-1988**

Saddam Hussain, the President of Iraq, declared war on Iran in 1980. The war raged for 8 years which created a worldwide concern that the Middle East was unstable and unreliable in the long term.

### **Strait of Hormuz and Oil Security**

US is spending significant money to ensure oil security in the Strait of Hormuz through which more than 20 million barrels of oil per day are shipped. Hormuz, a narrow channel lies between Oman and Iran, is a critical choke point for oil movement. A blockage of the channel even for a short time can create a major and significant energy crisis in the world. Fearing Iran's close proximity and its ability to block the channel, US along with supporting nations is geared up to ensure the security of Strait of Hormuz and that of oil.

Iran's revolution in 1979 thus created a major change to the world's geo-political outlook which is affected even today. Economic sanctions following the US hostage crisis against Iran had crippled the country's economy for the last 3-4 decades. Almost after 36 years, the new Iranian President Hassan Rouhani spoke by telephone to American President Obama in September 2013 to express Iran's seriousness to reach a pact on Tehran's nuclear program and to lift the sanctions. After a prolonged and strenuous efforts by Iran, US and European countries, the sanctions on Iran were lifted on 16<sup>th</sup> January 2016 including the release of nearly US\$100 billion of its assets. This allowed Iran to release an additional 500,000 barrels of oil per day in to the already drowning market which slashed the oil prices to reach below US\$ 30/bbl mark.

### **Oil Glut – 1986**

The world experienced a collapse of oil prices in 1986 from US\$ 30/bbl to less than US\$ 10/bbl. This created another major recession in the world especially the US. Although the demand for oil was growing, the oil glut was due to increased oil production from non-OPEC producers and Saudi Arabia increasing the output to retain its market share. Although OPEC agreed to curtail production to move the prices higher towards the end of 1986, the damage was already done. The world has not forgotten the devastating effect of the 1986 oil glut which created huge unemployment, recession and running several businesses out of existence.

### **Fall of Soviet Union – 1989-1992**

The crash of oil prices also triggered the collapse of Soviet Union between 1989-1992. Although the collapse is attributed to a democratic momentum that destroyed Berlin Wall in 1989, overthrow of communism across Eastern Europe and Gorbachev's unsuccessful attempt to democratize Soviet Union, the fall of Russia's economy due to the low oil prices contributed to the start of the collapse. The collapse of Soviet Union brought an end to the cold war which was raging for more than 47 years from the end of World War II.

### **Persian Gulf War – 1990-91**

Saddam ended the 8-year long war with Iran in 1988. Just two years later, he decided to invade Kuwait in 1990. Kuwait was captured within hours and by doing so Saddam controlled almost 20% of world oil and a substantial coastline of the Persian Gulf. The US fearing that Saddam's next target would be Saudi Arabia went on offensive immediately to push him out of Kuwait by Operation Desert Storm with allied troops from more than 37 countries supporting the effort. If Saddam invaded Saudi Arabia, he would have had control of more than 41% of world's oil and significant power to disrupt peace in the Middle East especially for Israel and to push global oil prices higher.

Saddam engaged the allies and Israel with scud missiles hoping that Israel would enter the war and that would withdraw the support of other Arab nations to the US and allies. However, US kept Israel under pressure not to enter the war at any cost. Although the world feared the worst, as Saddam was driven out of Kuwait within 7-8 months of its occupation by the US and its allies, the oil prices which arose to US\$ 36/bbl by October 1990 (from US\$ 18/bbl before the invasion) dropped back to pre-invasion levels by March 1991. In addition to US and its Partners of International Energy Agency ("IEA") releasing oil from Strategic Petroleum Reserves ("SPR"), Saudi Arabia also pumped excess oil in to the market along with support from other OPEC members to compensate for the loss of Kuwait oil which helped to control the oil prices. This demonstrated Saudi Arabia's capacity to influence the oil prices and be the World's Leading Swing Producer.

### **Asian Economic Crisis - 1998**

The Asian economic crisis of 1998 started a slide in the crude oil demand and the oil prices dropped to a single digit number per barrel. The world's spare capacity grew close to 5 million barrels of oil per day. However, the situation changed within 3-4 years with the regrowth of the economy supported by oil crisis in oil producing countries like Venezuela, Nigeria and Iraq.

### **Events Post Year 2000**

The September 11, 2001 attacks on the World Trade Centre created a profound effect of US foreign policy and in general on the world towards the Middle East. At the same time, Russia's new President Putin took control of some of Russia's biggest oil companies and declared that Russia will arise again with substantially increased oil production. Fearing the worst after the September 11 attacks, Saudi Arabia and other OPEC members increased oil output. However, as the market's surplus increased, the prices crashed. Saudi Arabia requested Russia to cut down production but Putin refused. OPEC then had to cut down production significantly to maintain the oil prices above a certain level which helped Russia to gain high revenues without the need of a cut in their production.

By 2002, due to a year long strike in Venezuela, nearly 2.5-3 million barrels per day of oil production was disturbed. In 2003, Nigeria faced an oil crisis due to emergence of militant groups and confrontations due to local and state elections. By March 2003, due to the invasion on Iraq to oust Saddam by the US and allies, an additional nearly 2-2.5 million per barrels of oil per day from Iraq was stopped. The oil prices hovered between US\$ 25/bbl to US\$ 40/bbl without spiraling up uncontrolled during these critical periods due to Saudi Arabia pushing oil production up by almost 1.1 million barrels per day and with other OPEC producers extending support to boost the production. Once again Saudi Arabia proved to be the leading Swing Producer to control the oil prices. Saudi Arabia also demonstrated its intention and willingness to prevent uncontrolled escalation of oil prices. This brought a good will from Saudi to US amidst the turbulent period between September 11 attacks and until Saddam's execution.

With no major geo-political issues in the world post 2003 and due to growing economics of Asia especially India and China, a steady increase of oil prices was seen from 2003-2007. The oil prices increased from an average of US\$ 27/bbl to US\$ 70/bbl during this period. However, from August 2007, although there was no obvious geo-political disturbance in the world, the oil prices soared to US\$ 140 per bbl by June/July 2008. Most of the oil importing countries suffered significant import bill problems to meet the country's demand but Saudi as well as Russia did not act to increase production to control the rising prices. Probably Saudi and other OPEC countries expected the growing world economy would tolerate the increasing oil prices and decided to benefit from high revenues.

The worldwide economic melt down in 2008-2009 pushed the oil prices down to \$ 30 per bbl but the effect stayed only for a short term. The combination of oil supply cut with the resurgent economy in Asia and bail out attempts to revive the economy by the US and European governments gradually allowed the oil prices to increase.

The oil prices then had a smooth and comfortable ride staying above US\$ 100/bbl for almost 4 years from February 2011 until June 2014.

However, the oil prices started to slide from July 2014 and dropped steadily until it reached the US\$ 30/bbl mark by January 2016 after almost 7 years.

## **2. Facts and Figures**

Industry reports differ by 2-3% in the demand number but the worldwide demand for crude oil and liquids is somewhere between 92-94 million barrels per day or "mb/d" as of Q3, 2015.

Two major categories influence the world crude oil market. One is "Oil Exporting Countries" or "OEC" and the other is "Oil Importing Countries" or "OIC".

Both the OEC and OIC are inter-dependent and require reliable partners to ensure a stable and profitable environment. While the OIC requires a reliable supply, the OEC requires reliable demand and buyers.

High oil prices in general will reduce the demand and weaken the economy as several of the oil importing countries cannot afford such high prices. However, they also encourage energy conservation and development of alternate sources of energy which is detrimental to the oil exporting countries.

Low oil prices while encouraging worldwide growth, also reduce the revenue of oil exporting countries significantly. As most of them depend on the revenues from oil to meet their budget requirements and huge energy subsidies, a reduced oil revenue creates significant budget deficits, a hold on development plans and pressure to sustain high energy subsidies, low taxes and free education and health.

Hence for the oil exporting countries, it is critical to maintain a balanced oil price that allows sustained growth and demand. However, as the production cost of oil varies even within the OPEC members and the non-OPEC producers, achieving a worldwide balanced oil price is a difficult target.

Oil is a global commodity. Unlike any other commodity, even a small variation affects the global population. Hence, beyond a simple supply vs economic model, oil price mechanism is a complex web influenced by geo-political environmental, economic, trading, security and stability factors. The complexity is such that majority of predictions and forecast of even the best of experts fail with surprises and sudden variations.

### **OPEC and non-OPEC**

The oil exporting countries can be divided in to two major categories.

1. OPEC (“Organization of Petroleum Exporting Countries”); and
2. Non-OPEC who are not a part of OPEC.

OPEC currently consists of Twelve Members – namely:

1. Saudi Arabia
2. Qatar
3. UAE
4. Kuwait
5. Iran
6. Iraq
7. Venezuela
8. Nigeria
9. Algeria
10. Angola
11. Ecuador
12. Libya

Indonesia was to re-activate its membership in December 2015 and will become the 13<sup>th</sup> member country in the OPEC from January 2016.

The world today produces around 94-96mb/d (Q3 2015 as per IEA-OMR Report) which includes 6.7 mb/d of NGL and 2.59 mb/d of bio-fuels.

Out of the total production, OPEC contributes around 31.7 mb/d equivalent to 34-35% of the world demand. In addition, OPEC also produces the 6.7 mb/d of NGL.

Among the OPEC, Saudi Arabia is the highest contributor with 10.0-10.1 mb/d or 11% of the world production.

The non-OPEC countries including the Americas and Russia produces close to 58.7 mb/d which includes 2.59 mb/d of bio-fuels. Russia produces close to Saudi's daily volume of 10.2-10.4mb/d and United States around 9.3mb/d thanks to the recent oil boom by record shale oil production.

Among the non-OPEC countries, the significant oil exporting producers are:

1. Russia
2. Mexico
3. Brazil
4. Canada
5. Norway
6. Kazakhstan

While OPEC and Russia export significant quantities of oil, the major importers of oil are United States, China, Japan, India, Germany, France, South Korea and many other European and Asian countries.

Despite high volume of production by the US and China, their net imports are higher.

US imposed a ban for exporting oil in 1973 (after the Arab Embargo) which was in effect until the end of 2015. Although the ban had been lifted for export currently, US net imports are still a significant number.

### **Oil Markets and Seven Sisters**

Before the formation of OPEC, International Oil Companies, called Seven Sisters, formed a cartel to control the supply and price. The seven sisters are:

1. Exxon (was Standard Oil of New Jersey, then Esso)
2. Mobil (was Standard Oil of New York, which merged with Vacuum Oil)
3. Chevron (was Standard Oil of California)
4. Texaco
5. Gulf Oil
6. Shell (Royal Dutch Petroleum)
7. British Petroleum (Anglo-Iranian)

The seven sisters controlled more than 90% of world oil market. These companies had crude oil production concessions from various countries including the Middle East and Africa with major control on oil exploration and production. Today they control less than 10-15% of the world oil.

### **Prominence of OPEC**

By around late 1950s, the international political scenario was changing rapidly. The worldwide decolonization and post events of World War II created several new independent states and a post war developing world. In this changing world landscape, OPEC was formed in 1960.

The oil rich nations decided to end the cartel of seven sisters and create a cartel of their own. Thus the Organization of Petroleum Exporting Countries popularly known as OPEC was formed. OPEC was inaugurated in September 1960 by five founding members namely Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. They were later joined by another nine countries. OPEC currently has 12 members (Indonesia as 13<sup>th</sup> member from Jan 16) and operates from Vienna, Austria.

As per OPEC, its objective is to co-ordinate and unify petroleum policies among Member Countries, in order to secure fair and stable prices for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry.

Starting from 1970s, most nations across the world nationalized the oil industry. National Oil Companies ("NOC") were formed to take control of the oil. Today NOCs hold the majority of world oil reserves. Saudi Aramco became the biggest NOC. It controls almost 11% of daily world oil production and around 16% of world oil reserves.

The OPEC's role in the world oil market was undoubtedly established by the 1973 Arab embargo and during the 1979 Iranian revolution. Further OPEC's role to control/curtail production to improve the oil prices during the 1986 crash due to oil glut, established Saudi as the world's swing producer.

### **International Energy Agency (IEA)**



To counter OPEC especially after the 1973 Arab Embargo, the net importers of crude oil formed an agency called International Energy Agency "IEA" with the objective to co-ordinate between its members to manage oil supply emergencies. IEA operates as an organization within the Organization for Economic Co-operation and Development (OECD) and currently has 29 member countries. Each of the member must hold a stock of crude oil for emergencies, the idea being to develop a Strategic Petroleum Reserves ("SPR") to draw in emergencies. Currently US holds close to 730 million barrels of crude oil as SPR.

Oil released from the SPRs helped in controlling the oil prices during the 1990 and 2003 Persian Gulf Wars along with the support from Saudi Arabia and other OPEC countries.

### **Oil Trade in Futures**

The world oil market and the oil price mechanism entered in to a new complexity in 1983 that has an intense effect on oil prices even today. By around 1983 oil trade in futures started in NYMEX type of markets.

In the early days the price of oil was determined by the spot prices and economical fundamentals prevailing at that time. The introduction of NYMEX type of oil trade futures allowed to fix the spot prices based on expected future price that beat the market fundamentals with speculation and predictions.

The futures market provided buyers an option to lock in a price for a specified future which allowed them to hedge against increase in oil prices. Although this has a risk factor of losing money if the actual spot price falls below the locked in price, it allowed the buyers to plan their budgets and costs without uncertainties. The future market for sellers allowed them to expect a profit based on predicted oil prices at a specified future date despite the risks inherent to that concept. The forecast of oil price based on futures contract models is not the right approach but the traders who buy or sell oil futures have the power to determine the cost of oil in today's market. Hence whether the oil is from Middle East or Africa or South America, the oil traders define the price.

However, the prices based on futures fail majority of the time as the market fundamentals, geo-political situation, regional stability and economics etc. take control of a real time situation against which the traders in oil futures have no control except predictions based on historical and statistical analysis.

There is no crystal ball for determining the oil prices even for the foreseeable future but it is important to understand that the oil price mechanisms of today are influenced by factors beyond the basic supply-demand economic model.

### **3. Fall of Oil Prices from US\$ 100/bbl to US\$ 30/bbl**

Several theories are floating across the world explaining the reasons for the fall of oil prices from above US\$ 100/bbl in June 2014 to US\$ 30/bbl by early January 2016.

However, the biggest uncertainty is why Saudi and other OPEC members are accepting the pain of lost revenues and significant budget cuts despite having the ability to cut production and control the drop of oil prices?

It is not a major science to understand that oil at US\$ 60/bbl even for 9 million barrels per day is more profitable than at US\$ 30/bbl for 10.5 million barrels per day. Then why Saudi and Russia are allowing the oil prices to drop without taking any steps to stop the slide?

Although OPEC produces close to 34-35% of world oil, other than Saudi, no other member has the capacity to swing the oil prices. Others can support the swing but unless Saudi leads from the front, any attempt by others alone will be ineffective. Russia leads the non-OPEC producers and has the ability to cut production to influence the oil prices but it cannot swing the market the way Saudi can do.

Hence the world is looking at Saudi surprised and confused to find out what is behind Saudi's continued silence? Despite suffering a US\$ 87 billion budget deficit in 2015 and under pressure to implement major reforms to manage significant budget cuts for 2016, why Saudi is accepting the pain?

The answer is complex far beyond the simple model of supply-demand perspective.

*I have made an attempt to develop a cause model based on various influencing factors to understand the current oil market. The approach is only an interpretation and evaluation based on geo-political, regional and international events of the past and the present. Hence the model cannot be considered as accurate based on factual data. Any omissions or errors are to be ignored.*

Although the fundamental economic concept of supply-demand is affecting the oil prices today, the most probable cause for the current situation was seeded in 2010 by the official formation of GECF and attempt by Russian President Putin to rise in the global gas market.

### **GECF**

Although the origin of the Gas Exporting Countries Forum ("GECF") started in 2001, the foundation to make the GECF an international organization with Doha, Qatar as the Headquarters was casted in Moscow in 2008. By 2010, the GECF became a fully functioning organization with the appointment of Leonid Bokhanovskiy, Russia as the Secretary General of the Gas Exporting Countries. The prominence and the potential influence of GECF in gas like the OPEC in oil was founded in 2013 at the 2<sup>nd</sup> International Gas Summit.

The Summit hosted by the Russian President Putin was attended by Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Oman, Qatar, Russia, Trinidad and Tobago, United Arab Emirates and Venezuela as well as Iraq, the Netherlands, and Norway as Observers and IEA, IEF and OPEC as guest international organizations.

At the end of the Summit, by a "Moscow Declaration", the Member countries unanimously affirmed to strengthen GECF, enhance global scale coordination to protect the interest of GECF, preserve principles of international trade as well as uphold the fundamental role of long-term gas contracts and continue to support gas pricing based on oil/oil products indexation.

The members also committed to foster the consistent growth of natural gas usage, promote the expansion of natural gas utilization in different sectors, and encourage GECF dialogue with all market players and stakeholders, to promote gas as a driver for environmentally friendly economic growth and social development([www.gecf.org](http://www.gecf.org)).

Currently the GECF is undertaking initiatives and activities to transform the GECF to a credible international platform for gas and to foster dialogue with key stake holders in the global gas market.

### **Why GECF cannot be Ignored?**

Between Russia, Iran and Qatar, they hold more than 54% of the world gas reserves. Russia holds around 1688 tcf (trillion cubic feet), Iran 1,201 tcf and Qatar 872 tcf, a total of 3,761 tcf against the world total of 6,973 tcf (EIA report for 2014). Although US produces significant amount of natural gas, majority of them is consumed indigenously.

Gas, even though a fossil fuel like oil, is considered to be a near zero pollution fuel as compared to oil. However, unlike oil, gas is not a global commodity due to the lack of extensive and expensive infrastructure to pump and transport the gas. Unlike oil, gas can be shipped only in a liquefied form which requires incredibly expensive processing facility and specialised LNG tankers. Approximately 60-70% of world gas production is consumed within the country of production, 20-30% crosses international borders if pipelines exist and only 10-15% are transported to intercontinental shipment through LNG tankers.

However, gas will gradually turn in to a fuel of the future. The influence of GECF on regional and global gas prices hence would become a major factor for gas price mechanism as that of OPEC for oil.



More importantly the GECF established the potential for Putin's influence and power over the gas markets with his more than 25% of world gas reserves.

Russian economy is commodity driven. Around 65%-70% of Russia's export revenue is achieved from close to 12% of world oil production, 18% of gas and more than 20% of some minerals. This makes more than 50% of Russia's government revenue.

For almost 12 years except in 2009, Russia's economy was growing with surplus budget with the support of high oil prices.

### **Fall of Oil Prices and Why It was Allowed Slide Uncontrolled?**

#### **Russia and Western Powers**

For reasons not discussed in this document, Russia invaded Crimea Peninsula in Ukraine in Feb-Mar 2014 and annexed it with Russia. This created tensions between the Western Nations and Russia. Immediately after that US imposed economic sanctions against Russia. This would affect any serious investments in Russia but if the oil prices continued at the early 2014 levels above US\$ 100/bbl, the Russian economy would not suffer any major set back and Putin would continue to enjoy enormous financial glut and power to fulfill his objectives in the world order.

Hence it was important for US and Western powers to weaken the Russian economy by reducing the oil revenue. As Putin would not reduce the production level, the only way to achieve the objective is to reduce the oil prices.

However, before any drastic action was taken, coinciding with the Russian invasion of Crimea and economic sanctions imposed by the US, few other critical developments aided the slide in oil prices. Most important are: (1) a record increase in the US shale oil production and (2) a weakening global economic growth especially in China, Japan, Europe and India.

Due to these influencing factors, the oil prices dropped continuously and within 6 months, by December 2014, the oil prices dropped close to US\$ 55-60/bbl. This was almost 40-45% less than the prices prevailed six months ago.

In the November 2014 meeting of OPEC, uncharacteristically Saudi Arabia decided not to cut the oil production to control the drop in prices. Saudi Arabia and other OPEC countries continued to pump at their prevailing production levels despite the dropping oil prices. The surplus oil in the market started to build up due to the higher supply against demand which drove the market down further.

The drop in oil prices by close to 45% hurt the Russian economy badly. Iran too suffered low revenues adding to the already suffering economy due to years of economic sanctions.

At that stage, although unconfirmed, the deliberate action not to cut the oil production to control the falling prices indicated that damaging Russia's economy might have been the intent of the US with the support of Saudi (as reduced oil prices also damages Iran's economy).

#### **Saudi Arabia and Iran**

However, from a strategic perspective, Saudi Arabia may not like to antagonize Russia. Russia is the largest producer of oil next to Saudi but it is not a part of OPEC. Saudi knows that unlike in the past, with the recent US oil boom and other market conditions, it cannot be the swing producer alone anymore. It might require Russia to support any cut in production to control the sliding oil prices. If Saudi can influence Russia to join OPEC, then between both of them, they would be controlling close to 22% of world's daily oil production. OPEC which currently contributes 34-35% of world oil production, will have close to half of world oil production at its control if Russia joins them. So Saudi may keep Russia under pressure by not allowing any production cuts to stop the falling oil prices but it may not share the Western powers sentiments against Russia.

Saudi's objective may be directed more towards damaging Iran's economy than that of Russia unlike the Western countries who had been negotiating to lift the sanctions on Iran (which had been accomplished on 16<sup>th</sup> Jan 16).

After the fall of Saddam, the biggest war threat from Iraq was eliminated for Saudi Arabia. However, the Arab spring started in Tunisia in 2010 created another major issue for Saudi Arabia. Iran is predominantly Shia Muslims. Saudi Arabia on the other hand is run by House of Saud who are Sunni Muslims although Saudi has a significant population of Shia Muslims.

Following Ayatollah Khomeini's revolution against Shah of Iran in 1979, the Shia Muslims in Saudi staged demonstrations and riots in the Qatif region. Although may not be directly related or connected to Shia agitation, around the same time of the Shia agitations, the Grand Mosque of Mecca was attacked. Saudi successfully suppressed the agitations and restored order but also provided later significant Government assistance to develop the infra-structure and improve the standard of life in the region to ensure peace.

However, with the imminent lifting of sanctions on Iran, Saudi may be fearing that Iran would indirectly support or instigate the Saudi Shia against the Saudi Sunni leadership using the Arab Spring model. With Iraq still struggling to get on its feet, there is no fear of any military invasion from Iraq on Saudi (although the Islamic State ISIS is a growing concern). Hence Saudi may not have major concern to distance itself from the US to avoid adding value to Iran's claim that Saudi is pro-US against the sentiments of the Arab Muslims which may attract Saudi Shia Muslims to Iran's call to agitate against the Saudi leadership.

In addition, Saudi may be speculating that with the oil boom due to increased shale oil production US may not consider Saudi important as in the past and probably may move closer to Iran if it agrees to abolish its nuclear aspirations and the sanctions are lifted. Even if US does not initiate ties with Iran, its approach towards Iran may become softer which is against Saudi's interests in the region.

Saudi may also be worried that if sanctions are removed, then Iran would start pumping more oil to regain its lost market share adding to the surplus oil and pressure to the already dropping oil prices.

#### **Saudi Arabia's Market Share and Budget Requirements**

Saudi knows that if it cuts the oil production to control the falling prices without Russia and other OPEC countries cutting proportionately, then it will lose its market share. At the current oil prices, most of the other OPEC members may be unwilling to make significant cuts but would expect Saudi to step in to act as the swing producer offering the maximum cut instead of a proportionate cut across the members. Saudi will be unwilling to do this because it will lose its market share immediately.

Already due to the low oil prices, Saudi suffered a budget deficit of US\$ 87 billion in 2015 and declared major reforms to remove energy subsidies, increase in tax and cuts to Government spend for 2016.

Saudi requires higher oil prices as oil sales provide more than 75-85% of the Government revenues. Hence there seem to be no solid reason for Saudi to allow oil prices to drop to the current levels.

#### **Saudi Arabia**

From a geo-political perspective, while falling Russian economy may be the intent of US and Western powers, Saudi may be following its new strategy (unlike in the past) not to take steps to control the dropping oil prices for reasons beyond the Russian economy. Saudi's decision to accept the pain of falling revenues and budget deficits might be to undermine the US shale production, other high cost producers and undercut the potential return of Iran's economy if it gains its lost market share after the sanctions are removed and to maintain its share in the market on a long term.

#### **4. How Far?**

Already at US\$ 30/bbl, several oil producing nations including some of the OPEC countries like Venezuela are suffering grievously. Significant number of jobs are lost across the world and businesses are going out of existence.

Following the lifting of sanctions on 16<sup>th</sup> Jan 2016, Iran had started pumping oil into the open market. The additional 500,000 barrels per day from Iran allowed the oil prices to slide from US\$ 30/bbl to

US\$ 27/bbl. If Iran increases the production to gain its lost market share, without a growing demand, it will increase the surplus oil in the world driving the prices down further.

The oil importing countries like China or India are highly benefitted by the low oil prices due to significant reduction in the import bills. However, the sustainability of the benefits is uncertain as the financial markets are badly affected. If the markets stabilize and the economy grows due to low oil prices, the demand for crude oil will also increase but then it will create a vicious cycle. If the oil prices rise again due to increased demand reducing the surplus, then it would also encourage shale oil producers and other high cost oil producers to return to the market. This will then increase the production surplus leading to another round of dropping prices.

It is important to understand that not all the oil in the world requires high cost/bbl to sustain production. Unconfirmed estimates indicate that only 20-30% of world oil production require oil prices higher than US\$ 60-70/bbl to meet the cost of production and earn profits. The technology improvements and cost optimization techniques have reduced the threshold values of minimum required oil price levels for the balance 70-80% of crude oil. The most affected at oil price lower than US\$ 50/bbl would be Brazil (deep water oil production), North Sea producers, GOM (deep water), Venezuela's bitumen black oil, Russia's arctic region and some of Canadian tar sands.

However, there is a significant difference between cost of oil production for profits by investors/operators and oil sale revenues for country's budget requirements by the oil exporting nations. For example, the cost of Middle East oil production is less than US\$ 10-12/bbl (average) and theoretically most of the Middle East OPEC producers like Saudi Arabia, UAE, Kuwait etc. can sustain even at oil prices as low as US\$ 20/bbl. However, these countries (except may be Kuwait) require higher oil revenues at US\$ 60-75/bbl levels to meet their country's budget requirements without making major reforms that would affect the life of commerce and common public in the country.

Other OPEC countries like Nigeria, Algeria etc. may require between US\$ 15-25/bbl (excluding deep water) to produce a barrel of oil but the break even levels to meet the country's budget requirements might require oil prices of US\$ 50-60/bbl or higher.

Venezuela requires oil prices at US\$ 75-85/bbl to meet the budget requirements and already its economy is collapsing under the US\$ 30/bbl oil price regime.

Russia is maintaining its US\$ 100/bbl production levels of 10.1-10.3 million barrels per day even at the US\$ 30/bbl level. The cost of production in Russia varies between onshore, offshore and arctic region. Excluding the arctic, the cost of per bbl of oil production may be less than US\$ 20-25/bbl for Russia but the low price oil hurts Russia's economy as its break even requirement for country's budget and economy would be higher than US\$ 50-55/bbl.

Hence, all the oil exporting countries that depend on revenue from oil sales to meet the country's budget requirements without resorting to major reforms are suffering. These countries would be able to manage by taking the cash from the reserve funds for a year or two with some reforms to remove or reduce energy subsidies, increase in taxes and/or modifying free education and health programs. But how long can they sustain?

At some point of time, Saudi must listen to other OPEC members to cut the oil production to reduce the surplus oil despite Iran coming in to the open market and Russia unwilling to participate in the cut program. Even if Saudi or Russia does not accept to cut the production, many OPEC and non-OPEC exporting countries might be forced to reduce the production to avoid losses or not to lose valuable oil commodity for low prices.

With US lifting the export ban, for the first time in the last 42 years, the US oil producers are exporting oil out of the country. They will work relentlessly to improve technology and reduce costs of shale oil production to sustain even at low oil prices.

Hence despite all the forecasts and predictions, it is difficult to develop a cost price index model for the near future.

Even if the oil price increases, as discussed earlier, the vicious cycle of high cost producers returning to the game, will keep the prices under a maximum limit.

## 5. Conclusions

Without statistical analysis or referring to oil futures predictions, purely based on geo-political environment and the pressure on oil exporting countries to break even to remove or reduce budget deficits, I expect the following to happen:

1. When the oil prices fall below US\$ 20-22/bbl or if the US\$ 30/bbl sustains for another 3-4 months, OPEC countries like Nigeria, Algeria, Venezuela, Angola will start putting more pressure on Saudi to take steps to increase oil prices or they would start cutting production to avoid losses or not to lose valuable oil commodity at low prices.
2. Saudi Arabia had already suffered a US\$ 87 billion budget deficit in 2015 and although it announced major reforms to manage 2016 budget with less oil revenue, it will not be sustainable in the long term. Saudi itself will be willing to take steps to keep the prices just high enough to improve the revenue from oil sales while at the same time discouraging the US shale oil and other high cost producers to return to the market. Saudi must be looking at mid-2016 or at least by end of 2016 to make such steps if the estimated 2016 budget deficits would be higher than it was in 2015.
3. Saudi Arabia might agree to production cuts only if all the other OPEC countries agree to proportionate cuts and adhere to the agreed production levels without cheating. Saudi will also require Russia to agree for a proportionate cut but how Russia will react to a Saudi strategy cannot be predicted now.
4. However, Russia, with its reserve fund diminishing, must start cutting the oil production at some point of time to increase the revenue from oil sales if it does not desire for the reserve fund to completely vanish or the economy to continue its slide. Putin cannot afford losing his popularity gained by allowing the country to suffer due to poor economics. If the oil prices do not increase beyond US\$ 35-40/bbl within the next 6-12 months, Russia may be negotiating with Saudi for shared production cuts by Q3, 2016.
5. Russia may take a gamble by pushing the gas prices to the East European and some of the West European market due to its monopoly of gas distribution. However, higher gas prices will weaken the economy of these states and hence that will not be a sustainable model.
6. The global economy will improve with the low oil prices and the demand for oil will grow especially in India, China, Japan and Europe. However, as the financial markets are not doing well now, the investors sentiments and consumer confidence will require more time to see a stable environment. Hence the effect will be seen probably within the next 3-6 months.
7. US shale oil production will decline if the oil prices continue to stay low at less than US\$ 30/bbl and hence US net import of crude will increase in the next 3-4 months. This may drive the oil prices up on its own.
8. Apart from the above, the traders in oil futures will play a major role in fixing spot prices based on the futures by speculations and predictions. This will make the oil prices jump between 2-3% or even more depending on the events unfolding in the world or in regional markets but as long as the surplus oil is present at the current levels, any such surge based on trader's speculations would be short lived.

Based on the above, the oil prices may continue to fall to US\$ 20-25/bbl if no immediate action is taken by OPEC and Russia to cut production to reduce/consume the surplus.

However, if the oil price falls to the US\$ 20/bbl level, either due to pressure from other OPEC countries and/or Russia expressing willingness to negotiate a production cut to improve the revenues, Saudi may change its strategy to lead the desired production cut to keep the prices at least above the US\$ 25/bbl mark or most likely close to the US\$ 35/bbl level.

In the near term, a US\$ 30-35/bbl level would be the target for Saudi Arabia as the swing producer to meet its short term objectives. The US\$ 35/bbl mark would not encourage the high cost oil producers or US shale oil investors to return to the market yet. Russia, Venezuela, Nigeria etc. may ride along at this level but in the long term would expect the prices to go close to US\$ 50-60/bbl level.

By 2017, if the demand for oil and world economy do not grow, the oil exporting countries who depend on revenue from oil sales to meet the budget requirements would have lost any hedging benefits, diminished the reserve funds and reached the limit of financial reforms. Hence despite the concerns on market share or any other geo-political situation and preferences, OPEC and non-OPEC producers will cut the production to improve the oil prices to US\$ 45-55/bbl by early or mid-2017.

Typical of the markets, by the end of 2016 (or even earlier), the world economy will stabilize from the uncertain market sentiments, the resilient financial markets would bounce back, and demand for oil will grow to take advantage of the already (by end 2016) low oil prices for almost 2 years in a row. This will push the oil prices up by consuming the surplus at a faster rate.

### **Where We Go from Here?**

Unless an unforeseen geo-political disturbance or any other global/regional event creates a short supply of oil, I expect that the oil prices in 2016 will stay below the US\$ 30-35/bbl level until Mar-Apr 16 and then gradually increase to 35-40/bbl level by mid to end 2016. There is a low probability for the price to go to the US\$ 50/bbl mark towards the end of 2016 but even if it does it will not sustain for a long time due to several intertwined factors discussed above.

The market will see short term surges and slides between US\$ 5-10/bbl from the above mentioned numbers depending on how the oil traders speculate in the futures market but it will be short lived if the fundamentals for such speculations are not solid and stable.

### **6. Further Contacts:**

For further discussions or presentations

J. Muthu Kumar  
Managing Director  
+91 98400 40227  
+971 55 2720723  
[jmk@iwellsmc.com](mailto:jmk@iwellsmc.com)  
[www.iwellsmc.com](http://www.iwellsmc.com)

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**J. Muthu Kumar, Managing Director, iWells:** + 30 years of experience in well construction (drilling, testing and completion) in all drilling environment with +12 years in running integrated project management contracts. Founder of iWells and lead manager to deliver its objectives.