

Developments in Conventional Oil Supply

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June 1, 2015

Introduction

At a time of limited economic growth in the world, any substantial production increase in an inelastic commodity like crude oil will have a major impact on its price. In the past few years the United States, which historically had been written off as a major oil producer in comparison with the oil-production powerhouses of Saudi Arabia and Russia, has managed to consistently increase production by up to one million barrels per day (bpd) year-on-year increases.¹ These increases, were caused by major developments in technology, which spurred the use of drilling and extraction through hydraulic fracturing of reservoirs deep underground, a process that is widely known as fracking. The success of hydraulic fracturing technology increased US local production from 5 million b/d, the lowest it had been in decades, to nearly 9 million b/d today². This boost in domestic production simultaneously reduced US needs for imports. Where in 2016, the United States imported well over 13 million b/d, imports in 2014 fell to just above 9 million b/d, and in doing so increased crude oil supply on the rest of the global markets. This stated, until 2014 the rapidly growing Asian country's, namely Japan and China, were able to absorb crude surpluses. In particular China increased its demand by an average of roughly 500,000 b/d each year for the past ten years, becoming the second largest importer after the US³. In fact many oil experts say that China is now the world's leading crude importer since the US, while importing 9 million b/d, also exports 3 million of refined products, making it a "net" importer of less than 6 million b/d, hence less than China.⁴

¹ EIA estimates, "U.S. oil production growth in 2014 was largest in more than 100 years," March 30, 2015, Accessed at: <http://www.eia.gov/todayinenergy/detail.cfm?id=20572> and

<http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WCRFPUS2&f=W>

² EIA data, accessed at: <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MTTIMUS2&f=A> and <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPUS2&f=A>

³ EIA, "China is now the world's largest net importer of petroleum and other liquid fuels," March 24, 2014, accessed at: <http://www.eia.gov/todayinenergy/detail.cfm?id=15531>

⁴ For the precise production and import figures of the United States refer to the Oil and Gas Journal's weekly "Statistics" compendium

The exponential growth of China's oil demand has come because it is one of world's fastest growing economies. Even though its economic growth rate has recently declined, its GDP is still growing at 7% yearly⁵. Accordingly, China imported an average of 7.19 million b/d of crude oil in 2014 and as high as 7.4 million b/d in April 2015 for a total consumption of about 11 million b/d.^{6 7} Moreover, to avoid being over dependent on one source, China is seeking to diversify its suppliers of crude. China presently is now importing from a wide array of countries including Saudi Arabia, Angola, Russia, Kazakhstan, Iraq, Oman, and others.

While the growth of non-conventional oil extraction methods in the US and Canada, shale and tar sands respectively, are the most widely recognized challenges to conventional oil production, a number of other challenges have grown in significance in recent years. This includes the potential for Venezuela to utilize bitumen deposits to become a major supplier of non-conventional oil.⁸ Conventional oil is also challenged by increasing availability of natural gas through the proliferation of pipelines, as well as through the large increase in Liquid Natural Gas (LNG) supplies worldwide. In particular the demand for which is increasing rapidly due to historically low natural gas prices and growing demand from countries like China who view natural gas as a solution to their growing pollution crisis.⁹ Adding to all this is the increasing pressure on conventional oil from renewable sources like solar and wind, which while still

⁵ World Bank, World Development Indicators Database.

⁶ "Record Oil Imports Take China Closest Ever to Passing US" *Bloomberg Business*, January 14, 2015, accessed at: <http://www.bloomberg.com/news/articles/2015-01-14/record-oil-imports-take-china-closest-ever-to-passing-u-s-1->

⁷ "China's crude oil imports hit record, coal shipments slump," *Reuters*, May 5, 2015 accessed at: <http://www.reuters.com/article/2015/05/08/china-economy-trade-commodities-idUSL4N0XZ20T20150508>
UPDATE 1-China's crude oil imports hit record, coal shipments slump

⁸ MB Dusseault, "Comparing Venezuelan and Canadian Heavy Oil and Tar Sands," Paper presented at the Canadian International Petroleum Conference 2001, Accessed at: http://www.southportland.org/files/3713/9387/3165/Heavy_Oil_and_Tar_Sands.pdf

⁹ Geoffrey Styles, "Turning coal into gas: A solution for China's smog?" *Christian Science Monitor*, December 25, 2013, accessed at: <http://www.csmonitor.com/Environment/Energy-Voices/2013/1225/Turning-coal-into-gas-A-solution-for-China-s-smog>

relatively small and expensive will only increase in popularity as technological advancement makes it cheaper and easier.

This stated non-conventional oil production is still dramatically eclipsed by conventional production, with the former only totaling the equivalent of 5.7 million b/d worldwide in 2013—about 2% of total energy supply and 6.3% of total oil supply¹⁰. However, in an inelastic market like the oil market, small changes in supply are able to exerted disproportionately large downward pressure on prices. Thus, despite the seemingly nascent level of non-conventional oil production, if conventional oil suppliers want to protect their economies and income for future generations it is important for them to find a defense against the onslaught of the new extraction technologies and energy sources.

Along with non-conventional crude production, sociopolitical turmoil in conventionally producing countries has also affected oil production. The dreadful conflicts afflicting Libya, Syria and Iraq, the sanctions against Iran, and the mismanagement of resources in Venezuela, among other world problems today, are limiting the potential output of countries with significant production potential. In this sense it is sad to note that the misfortune of these countries has in turn acted to benefit other oil exporting countries. Moreover, many of these conflicts and issues are likely to continue into the foreseeable future, hence continuing to limit the world supply of crude. Even Iran, which may see its sanctions lifted soon, may not bring back its fields to full production for a few years.^{11,12} All of this results in markets that are not seeing about 4 million b/d from countries plagued by political problems rather than by production issues. This in turn

¹⁰ BP Statistical Review 2014, p38. Total world supply for wind, geothermal, solar, biomass and waste, shown as totaling 279.3 million tons/year oil equivalent, translated into barrels by the writer at 7.5 b/ts.

¹¹ As of this writing in June 2015, the agreement between the P5+1 and Iran on nuclear issues has not yet been signed, thus the lifting of sanctions is not sure. However, it is likely that if the United States balks in reaching the agreement, most of the countries of the world will lift the sanctions.

¹² Richard Nephew, "Opening up the taps on Iranian oil," Columbia SIPA Center on Global Energy Policy, March 17, 2015, accessed at: <http://energypolicy.columbia.edu/sanctions-blog-columbia-s-center-global-energy-policy-post-three>

limits the global supply and prevents prices from falling even further. Indeed, should all the political problems of the world get resolved, supply would increase tremendously and prices would totally collapse to well below \$20/b. Yet, with the possibility of peace to occur remaining miniscule, one could speculate that the main conventional producers and decision makers in Russia, Saudi Arabia, Norway, Kuwait, and the United Arab Emirates are not losing sleep over a sudden return to the markets of the energy sectors in troubled countries. Instead, the major oil-exporting countries are worried about two main issues: one is the substantial new production from the fracking industry, and two the market share which they have to defend from each other.

Of the aforementioned countries, Saudi Arabia is the largest exporter of crude oil, and competes for title of largest producer with Russia and the United States¹³. Hence, this chapter will focus on the relationship between the large conventional oil producers and their economic and political relationships in times of market fluctuation. Accordingly, primary focus will be given to the strategy and tactics employed by Saudi Arabia to maintain its pre-eminence in the oil market. It will be argued that the weak prices of 2014/2015 are due in part to Saudi Arabia's increase in production at a time when the US produces more non-conventional oil and its efforts to bring non-OPEC producers to cut production, and thus prop up prices. Moreover, this chapter will show that Saudi Arabia is likely trying to obtain cuts in production from Russia in particular.

Saudi Arabia has taken this course of action in order to regain control of the overall market at a time when it is unable to impose its will on non-conventional oil production, the production costs of which have declined substantially over the past months. Moreover, it is a time when Saudi Arabia cannot trigger increased sales to an increasingly energy-intensive China, the world's primary importer of crude oil. In this sense, in order to reduce world supply and

¹³ The ranking of which is first producer depends in great part on how Natural Gas Liquids (NGLs), like Propane and Butane, are accounted for. The US and Russia, both large producers of Natural Gas produce large amounts of NGLs, while Saudi Arabia produce a lot more crude, but relatively little NGL.

bolster prices, Saudi Arabia can only try to influence conventional oil production. As the main supplier of conventional crude oil with Russia, Saudi Arabia wants to preserve its position in the market. Consequently, Saudi Arabia has employed a strategy that aims to get conventional suppliers to agree to production cuts so that their own relative share of these markets does not decline; a goal that the Kingdom hopes to reach by increasing its own production, driving down global prices, and forcing conventional producers into a fiscal corner, and insisting that they cut production to see prices return to a higher level.

I. Saudi: A Policy and A Budget

In December 2014, Saudi Arabia's promoted a strategy of defending market share through aggressive production levels. It is most probable that the Minister of Petroleum and Minerals, HE Ali Al Naimi ["AAN"], obtained a consensus among the Kingdom's leadership for using the country's large cash reserves and could argue back home that that Saudi Arabia, unlike most other producers, can easily withstand low prices for many years. Thus, AAN was attempting to pressure the other oil suppliers into cutting their own oil production. While media and academia alike have argued that US shale producers were the main targets of Saudi's policies, factors surrounding oil production suggest that the main target is actually Russia's state controlled entities. It is these entities who have the ability to cut production upon order from the Russian leadership; an ability that the privately owned shale companies in the US, whose main allegiance is to their rate of return on equity opposed to political leadership, do not possess.

Should Russia be the target of the Saudi efforts to promote a decline in production from non-OPEC members, it seems that this policy is showing partial success, at least as of May 2015. This is shown by the rebound in prices from \$46/b to \$65/b in late May 2015. One could fathom

that prices may rise to \$80, and then be kept at this level by Saudi Arabia, who can use its excess production capacity to increase supply and maintain price levels. The figure of \$80 may appear somewhat arbitrary, but in actuality it is a level that allows the Saudis to cut their budget deficit substantially, while minimizing negative impact on world demand. Moreover, it is the level where large investments in non renewable energy will slow, albeit not disappear, shale oil will be less profitable than in 2014, forcing investments in non-conventional oil to decline, while still allowing investments in conventional oil to continue, albeit at a lower pace. Hence, from a technical, public relations, and political standpoint \$80/b could be a “sweet spot” for the Saudis. Additionally, from a purely geopolitical perspective, it would maintain pressure on Iran to negotiate in good faith with the P5+1, push Russia to cooperate on oil policies, and simultaneously softens up Russia’s political stance in the Middle East. Yet, to attempt and reach this end result, Saudis have to accept significant outflow of their cash reserves.

The dramatic decline of the Brent crude index from \$114.02 on June 17, 2014 to \$46.40 on June 20, 2015 has had, and will continue to have, significant, albeit bearable, impacts on Saudi Arabia’s fiscal position. Oil production in the Saudi Arabian Kingdom was as high as 9.8 million b/d in December 2014, up from 9.6 million b/d in October/November that same year, and actually increased to 10.308 million b/d in April 2015.^{14, 15} With respect to exports, after accounting for domestic crude use, adding back exports of natural gas liquids, like propane, butane, condensate, NGLs, and refined products, the Kingdom exported around 8.334 million b/d of liquids in 2014.¹⁶ Where these figures are substantial, their direct effect on Saudi Arabia’s

¹⁴ According to a speech by Khalid al Falih the President of Saudi Aramco in January 2015 reported in MEES, 30 January 2015, Vol 58, No.5

¹⁵ MEES 22 May 2015 - Volume: 58 Issue: 21. “Saudi Arabia Crude Production And Exports Hit Record Highs” Published on Fri,

¹⁶ Computed for MEES table “Saudi Aramco in Numbers, itself quoting Saudi Aramco’s 2014 Annual Review. MEES May 15, 2015, p 7

revenue stream is complicated by the fact that oil prices have varied significantly from the June 2015 price of \$46.40/b. Moreover, whereas light crude, NGLs and exported refined products bring high revenues, many of the heavier crudes produced in Saudi Arabia and sold on the global market are sold at lower prices. Hence, for simplicity's sake and with a proviso that some of the Saudi exports are sold for higher and others for lower than the Brent index, budgetary calculations assume that Saudi Arabia's income per barrel exported averages around the Brent crude index price. Fluctuations notwithstanding, the impact of lower prices on Saudi Arabia's income is substantial. With a decline of \$50/b from the highs of 2013/2014, Saudi Arabia's annualized income from oil exports in 2015 could decline by \$150 billion to \$180 billion, from over \$330 billion in 2013/2014. Of course, the price of crude seems to have hit bottom at \$46/b for Brent, and has now regained substantially. As of this writing in June 2015, prices for Brent have risen to \$65/b; yet even at this level, Saudi income from exports stand around \$198 billion, still very far from the heights of 2013/2014, but still below the amount needed for the Kingdom to balance its budget. These facts are further substantiated through a closer assessment of the Saudi budget.

The Middle East Economic Survey (MEES) quoted an analysis by the Saudi's National Commercial Bank, and Jadwa Investments, about the price used by the Saudi government to compute their budget, stating that budget figures were computed using a price per barrel of about \$61/b.¹⁷ At that price, the 2014 budget of \$229 billion announced by the Ministry of Finance on revenues of US\$ 190 billion will result in roughly a \$39 billion deficit; this is including the other income sources of the Kingdom such as dividends from state owned industrial firms, zakat taxes

¹⁷ "Saudi Arabia Budgets for \$39Billion 2015 Deficit despite Spending Cuts," MEES, Volume 58: Issue#1 2 January, 2015

and sundry revenues.¹⁸ Nonetheless, should the deficit remain at this level, Saudi Arabia could easily subsist on its own reserves for at least 10 years. Yet, the Saudi budgets have usually been understated, thus the Saudi financial wherewithal may be lower. In 2014, expenses were 28% higher than budgeted (\$229 billion). Already in 2015, the newly seated King Salman ordered extra payments to Saudi civil servants and military personnel, which is costing the treasury about \$20 billion.¹⁹ Furthermore, the published budgets do not include military expenses that were estimated in 2014 by MEES and think tanks to be in the neighborhood of \$80.8 billion.²⁰ Moreover these expenses were computed before the military operations in Yemen, which are likely to mount up rapidly. Thus, at \$61/b, if we assume an overrun in budgeted expenses of 25% on both civilian and military budget, the total amount needed by the Saudi treasury in 2015 could be as high as \$306 billion and the deficit around \$126 billion.²¹

These figures are underpinned by the government's determination not to cut expenses. Jadwa Investments, which provides extensive analysis of the Saudi economy wrote on December 28, 2014 that...

despite the global environment of lower oil prices, the Kingdom maintains its counter-cyclical economic policy in the 2015 fiscal budget. It continues to highlight the government's intention to stimulate the economy. We expect the investment spending to remain elevated at SR 285 billion in 2015, which will support healthy economic growth and provide encouragement and opportunities for the private sector at a time of global and regional uncertainty.²²

¹⁸ Jadwa Investment: "Saudi Arabia's 2015 Budget". 28 December 2014, p.1

¹⁹ "Saudi King Salman issues major royal orders," Al Arabiya, January 29, 2015. Accessed at: <http://english.alarabiya.net/en/News/middle-east/2015/01/29/Saudi-Arabia-to-announce-royal-orders-by-King-Salman.html>

²⁰ International Institute for Strategic Studies (11 February 2015). *The Military Balance 2015*. London: Routledge. Accessed through en.wikipedia.org. "List of Countries by Military Expenses" on June 6, 2015.

²¹ Computed as the announced budget of \$229 plus 25% overrun = \$286 billion, plus \$80 billion for military expenses = \$306 billion on revenues of about \$180 billion, for a net deficit of \$126 billion

²² Jadwa Investments : Saudi Arabia's 2015 Fiscal Budget" December 28, 2015

All these factors present a situation where Saudi officials will undoubtedly have to overcome a substantially large budget deficit. However, the Saudi Arabian Monetary Agency (SAMA) and the Ministry of Finance can draw on three different sources of cash. First, as of December 31, 2014 SAMA has \$744 billion in assets, 97% of which are held in treasury bonds mainly of the United States and some in government Euro and Yen bonds, all of which are very liquid instruments.²³ Second, SAMA manages the reserves of the pension funds GOSI and PPF, which in December 2014 totaled about \$149 billion. Third, Saudi Arabia, as it has in the past when the state ran up large deficits between 1985 and 2000, can issue development bonds.

With respect to development bonds, when deficits were chronic, the local Saudi banks were encouraged to invest into the Kingdom's bonds and loans to state owned industrial companies like SABIC, Vela and Ma'aden.²⁴ These bonds and loans paid better interest rates than foreign assets and were seen by the banks, albeit not technically, as a debt of the Saudi state, and thus better risks than Eurodollar loans to large foreign firms and governments. Moreover, the local banks hold foreign cash assets, and Saudi Riyal near-cash instruments, of about SR 500 billion (\$133 billion). The Saudi treasury has repaid most the bonds it had issued in the past and thus could easily return to the banks for more funding if needed.²⁵ Therefore, if the Saudi state requires funding to cover the overall budget deficits, it could rely on about \$1 trillion. This gives the Kingdom the ability to fund the expected deficit of \$126 billion computed above, for over 5 to 7 years.

Naturally, it is very unlikely that the leadership would allow the present Saudi nest egg to decline to near extinction. However, the Kingdom does have the ability to sustain large deficits

²³ SAMA Monthly Statistical Bulletin, December 2014, Table 8(a) and Table (9)

²⁴ SAMA Quarterly Statistical Bulletin December 2014, Table (10)

²⁵ SAMA Quarterly Statistical Bulletin December 2014, Table (11a)

for some time, certainly for more time than any other oil exporters around, including Russia, which has the largest cash reserves of the non-OPEC oil producers, with an estimated \$350 billion. It is in this sense that while Saudi's aggressive production strategy does surely have fiscal repercussions, they are likely bearable if the desired goal of protecting its market share at comfortable price levels can be reached.

II. The Ministry of Petroleum and Mineral's Silent Weapon

Saudi Aramco has spent a great deal of money over the years to increase capacity from 9 million b/d to over 12.5 million b/d. Nonetheless as of April 2015 Saudi Arabia only produces 10.3 million b/d, and accordingly, if so required by the Saudi authorities, could increase production quite rapidly.²⁶ This ability to push crude onto the world markets is taken seriously by both buyers and competitors. This perception is underpinned by the fact that Saudi Arabia has proven time and again that they can increase production rapidly. During the first Libyan crisis of 2011, Saudi Arabia increased production with a mix of crude that mimicked Libyan crude, thus limiting the impact of the loss of Libyan production on world prices, and during the wars of Iraq, Saudi Arabia did the same by replacing the diminished production of Iran, Iraq and Kuwait.²⁷ While the Kingdom has never pushed its production capacity to the limit, there is little doubt that Saudi Aramco could put add an extra one or one and a half million b/d of various crudes on the market in order to achieve the strategic ends it had in mind. This was clearly demonstrated in the years preceding the turn of the century.

In the first quarter of 1998, Saudi Arabia flooded the markets with an extra 350,000 b/d even when prices were very depressed, forcing prices to hover around \$11.29/b and even to fall

²⁶ Anton Nakov, and Galo Nuno. "Saudi Arabia and the Oil Market." *Economic Journal* 123, no. 573 (December 2013): 1333-1362.

²⁷ Barbara Lewis and Muriel Boselli, "Saudi raises oil output as Libyan exports disrupted," Reuters, February 25, 2011. Accessed at: <http://www.reuters.com/article/2011/02/25/us-saudi-libya-oil-idUSTRE71O3P020110225>

below \$10 for a short period of time.^{28, 29, 30} This increase came after many warnings by AAN, that producers should cut production to match Saudi Arabia's efforts to cut its production in order to maintain prices.³¹ At the Jakarta OPEC meeting in December 1997, the Minister demanded an increase in quota, obtained it and Saudi Aramco increased its production, causing the plunge in prices.³² At the time Saudi Arabia had the capacity to increase production by a two or three million b/d. Hence, the producers saw clearly that the Saudis had a very big stick, and needed only to speak softly to make their point. Shortly after Jakarta, the Minister went to Moscow, Norway and Mexico and managed to get these three major producers to agree to cut production by ½ million b/d, an amount that Saudi Arabia matched.³³ Hence, with a cut in supply by 1 million b/d, prices promptly recovered past \$20/b. Further cuts later in the year, then shared by many other suppliers from OPEC, brought about a further doubling of prices and putting the Brent prices on track to reach \$125/b in 2011.

Even with this chain of events, it could be postulated that the price rebounded in 1998/1999 because of purely technical reasons that caused supply to decline. Russian fields lacked investments and technology and were already in decline. Norway was undergoing extensive maintenance of its fields and Mexico had management problems. Hence, Minister AAN may have been more lucky than crafty in the management of the oil prices. However, it should be noted that none of the producers would officially agree to be gently strong-armed by the Saudi Minister. Indeed, it seems that the Saudi modus operandi is to work quietly, behind the

²⁸ Ibid. p5

²⁹ Mabro, Robert. *The Oil Prices Crisis of 1998*. Oxford Institute for Energy Studies, 1998, p 15

³⁰ "Marginal increase in production signals more of the same in 1999." *Petroleum Economist* 66, no. 3 (March 1999): 48.

³¹ Baldauf, Scott. "OPEC's lost grip on oil prices. (cover story)." *Christian Science Monitor*, March 19, 1998

³² "OPEC Charts New Direction With Jakarta Production Agreement," *MEES Mon*, 08 Dec 1997

³³ Kohl L. Wilfrid, "OPEC behavior, 1998-2001," *The quarterly review of Economics and Finance* vol. 42 (2002) p.212

scenes, but still be willing to apply pressure until action ensues. Nevertheless, it seems telltale that the non-OPEC countries did cut production, just at the time when the Saudis brought the prices to unsustainable levels for all the producers.

At the time, the fiscal situation of Saudi Arabia was not as strong as it is today. In fact, some in the Saudi leadership were asking for the Minister's resignation. Prince Sultan's son in Washington was trying to organize the US oil majors to come to Saudi Arabia and take over new exploration and new production from Saudi Aramco. Prince Bandar bin Sultan was rumored at the time to be unhappy that oil income was so low as to hurt Saudi arms purchases and the subsequent decline in income of many in the royal family. Prince Sultan even got Prince Abdullah, who became King in 2005, to come to Washington and meet with the oil majors. These meetings came to naught as the Saudi oil bureaucracy worked hard to derail the intervention of US firms in upstream production.

At the same time, the Minister took the risk of bringing prices even lower, hurting Saudi income even more, but bet that the other suppliers would cry uncle and agree to cut production, thereby bringing prices up. Of course, it is not known whether AAN planned the price decline and increase, but if he did, it was indeed a stroke of genius and an effort made at great personal risk, as his position vis-à-vis the leadership was shaky. However, his actions did have the support of King Fahad and thus gave him the support he needed at home. In any event, the maneuver succeeded and prices went rapidly back to a proper level, and in doing so potentially shed light on AAN's market shaking actions in 2014.

In the second half of 2014 markets perceived that oil prices were on a downward spiral. Hedge funds were reputed to short large volumes of oil, the belief that China will grow quickly forever was dissipating, and economic recovery was slow in the US and nonexistent in Europe.

At the same time, the supply of North Dakota shale oil was, and still is, bringing nearly 1 million b/d of extra supply in the US markets each year.³⁴ To markets, this increased supply meant that net imports of crude and products by the US were declining by a similar amount, consequently increasing the supply on the world market. During this period, the overall US production increased to 8.66 million b/d of crude plus 3 million b/d of NGLs produced mostly as a byproduct of the large shale gas industry. For its part Saudi Arabia produced an average of about 9.6 million b/d of crude but “only” around 2 million b/d of NGLs, making the US the largest producer of liquid hydrocarbons, Russia the second, and Saudi Arabia the third.³⁵ ³⁶However, Saudi Arabia remained the largest exporter of crude oil by far. Hence, the markets assumed that it would cut its own supplies to prop up the price, just as it did in the mid 1990s, prior to the Djakarta OPEC meeting. However, the Saudis are not keen in losing market share as they had in the past. They know that if they cut production many would make every effort to profit off their loss as had happened in the late 1990s.

Hence, it would appear that AAN saw the situation as a “back to the future” issue. If he could convince the Saudi leadership to take the risk to eat up Saudi cash reserves, he would find himself in a scenario very similar in the late 90s. By declaring that Saudi Arabia would not cut its supply, and getting the United Arab Emirates to support the Kingdom, the market reacted brutally and declined to the \$46 /b level. Internally in Saudi Arabia, the political leadership may count on such a move to pressure Iran into accepting a P5+1 deal, which would ultimately protect Saudi Arabia from Iran’s nuclear weapons, open the two countries to profitable exchanges, and allow for cooperation between the two countries on the very difficult problems in

³⁴ EIA estimates, “U.S. oil production growth in 2014 was largest in more than 100 years,” March 30, 2015

³⁵ Estimated from the figures provided by MEES, January 23, 2015 Vol:58, No.4 p.18

³⁶ Energy Intelligence Agency: report on Saudi Arabia, updated September 10, 2014

Syria, Iraq, and Yemen. It would also help Saudi's diplomatic effort to pressure on Russia into being more amenable to a Syrian solution. While these arguments do undoubtedly carry some sway, the precipitating motivation may simply be the Kingdom's ability, and desire, to manage the oil markets to their own benefit. The actions and statements of Minister AAN highlight the possibility of this foundational motivation.

III. Saudi Policy and Non-OPEC producers

It is clear from AAN's interview with MEES on December 22, 2014 that the Saudi Ministry is very well aware that the US increase in production is the immediate cause for the price collapse.³⁷ However, he also knows that Saudi Arabia has very limited influence on these producers. The US producers are greatly benefiting from the major progress in technology that is taking place in the shale oil and shale gas industries. These technologies are increasing production per-well, and in fact cutting production cost substantially. At a recent conference on the future of the oil industry in light of low prices at the Center for Strategic and International Studies, a presenter said that shale oil cost was now as low as \$35/b.³⁸ Nevertheless, there are still shale oil plays with costs above \$60/b and those could be expected to shut down. However, none of the experts present at that conference expected US production to decline for the next three years and in fact would slightly increase in light of technological advances and already made investments.

Another of the arguments made by AAN in the interview to MEES is that the low prices will eventually force out the high cost producers. While this may lead some to believe that HE AAN is speaking solely of shale producers, the reality is much different. HE AAN makes the

³⁷ MEES, December 22, 2014. Vol. 57, No.51/52 "Interview With Ali Al Naimi"

³⁸ January 28, 2015 The Energy Market Impacts of Low Oil Prices: How LoLow, How Long?

point that the high cost producers are only partially composed of US shale oil firms, and that many shale producers will remain competitive at prices below \$50 per barrel. Undoubtedly, the Saudi Minister is well aware of the US shale industry and the costs of their productions. He has no illusions that Saudi Arabia will shut down production in North Dakota. AAN, as well as the US experts, know that investments in these fields will decline somewhat, but that production will continue, unless the rate of return on investments of the US oil companies falls drastically for an extended temporal period, not just over the next few months. In that light, it becomes clear that the minister's main barb is directed to the Russians, whose wells in Siberia are nearly exhausted and require large investments. Indeed, AAN says that these wells are kept open solely because they are so inefficient that if closed they could not get restarted in the event that prices made them profitable again. AAN continues, arguing that it is better for the world economy to leave production to the efficient producers, especially Saudi Arabia where the present cost is \$4/b to \$5/b, and whose marginal new production costs are at \$10/b,³⁹ Naimi makes this logic clear in asking, "Is it reasonable for a highly efficient producer to reduce output, while the producer of poor efficiency continues to produce? That is crooked logic... sooner or later, however much they hold out, in the end, their financial affairs will limit their production... I say that the Gulf countries, and particularly the kingdom have the ability to hold out."⁴⁰ In this sense the statements on US producers and on efficiency could be read as a message to Russia; one stating that if they do not cooperate now and limit their production, not only will some wells be lost for good, but they will be forced to spend egregiously to maintain their present market share, thus effectively losing more money than they could hope to make. In other words, AAN is advising the Russians not to be ideological and instead to be cooperative for the benefit of all.

³⁹ Op.cit. MEES, December 22, 2014. Vol. 57, No.51/52 "Interview With Ali Al Naimi

⁴⁰ Ibid.

The Saudis never openly discuss their true strategy, and the Russians could never admit having been forced to give in to a small power like Saudi Arabia. One could expect the supply from these two countries to decrease just enough for the markets to perceive a slight tightening and thus brings prices rapidly up- but not too quickly in order to avoid hurting the world economic recovery on which both depend in the long run. Yet, regardless, AAN's stance is clear, for as he states, "If the price falls, it falls, you cannot do anything about it. But if it goes down, others will be harmed greatly before we feel any pain."⁴¹ AAN's statements, Saudi Aramaco's production levels, and external budgetary calculations appear to show that Saudi Arabia is trying to discipline producers just as it did in 1998/1999. Yet, the Saudis have little hope to bring their fellow members of OPEC to cooperate, except perhaps for the UAE, which lately has been siding with the Saudis both economically and politically. Moreover, as previously noted, the Saudis are not lulled into thinking that they can change the amount produced in the US easily, as the decisions to cut production are taken by numerous independent companies who evaluate their rate of return on investments before they start or shutdown their wells. Accordingly, it does seem that the main target of the Saudis is Russia—the only major producer that can rapidly cut production, above and beyond their natural attrition rate.

It appears that the Russian card presently played by the Saudis has a good chance of working. Indeed, Riyadh's leverage against the Kremlin is quite impressive, as is demonstrated by a number of factors. First and foremost, the Saudis can sustain a budget deficit, inclusive of their very large military expenses, of over \$180 billion for at least five years, which the Russian treasury cannot come close to matching. Secondly, the Saudis are quite aware that Russia requires higher oil prices as soon as possible to sustain its economy, its political commitments

⁴¹ *ibid.*

worldwide, and an increasingly aggressive, meaning expensive, military establishment. Thirdly, it is known to all parties that oil is an inelastic commodity and that even a simple economic analysis would show that a decline in production of say 5% would increase income by 20% or more.

While these economic factors are substantial, there are additional political dimensions likely to be closely considered by both parties. On the one hand, the Saudis would like the Russians to stop supporting President Bashar al-Assad in Syria and limit their support of Iran. Indeed, both of these issues, although not necessarily the cause of the tussle on oil production, can be negotiated in light of a potential cooperation on oil output and prices between the Kingdom and Russia. On the Syrian side, it could be that the Saudis would eventually accept to keep Assad, provided Russia guarantees that he becomes inclusive of the non-extremist Sunnis. The present outrages performed by the Islamic State and Al-Qaeda factions in the region are proof that they are as much a danger to Russia as to Saudi Arabia. On the Iranian side, it would seem that an arrangement between the P5+1, which includes Russia and China, would give cover to the Saudis to in turn make a deal with Iran to solve the problems in Syria, Iraq and Yemen in return for stability in the oil markets and various Saudi investments in Iran and/or the purchase of natural gas from Iran.

The present decline in oil prices shows that Saudi Arabia is not a victim about to suffer major economic and social consequences from falling prices of its main export good. On the contrary, the Kingdom is actively using the decline in prices to establish or re-establish its dominance over the energy markets. It may no longer be the largest liquids producer having fallen behind United States and Russia, but it is still the cheapest producer and still the only one

able to increase production substantially and rapidly or limit production as it sees fit.⁴² Accordingly, in light of the increasing necessity for cooperation between oil exporting nations, Saudi Arabia has decided to employ an aggressive production strategy through which it hopes to both maintain its own market share and, in time, raise prices to an acceptable and fiscally sustainable level. Nonetheless, while Saudi's strategy is clear, recent political reverberations in the Kingdom, namely the death of the King and the massive political and economic reorganization that followed, have led many to question whether Saudi Arabia will hold true to its strategy of aggressive production.

IV. The Changes in the Saudi Arabian Oil Policy Structure⁴³

Since King Salman bin AbdelAziz took the throne after the death of his half brother Abdullah in December 2014, there have been many important changes in government and economic structure, most notably in the oil sector. While many of the bureaucratic changes have been widely assessed, it is the changes in the oil sector that have puzzled even seasoned observers, rendering the deciphering of oil policy in the Kingdom even more difficult than the historical norm. The main changes, as they relate to oil were:

- The Ministry of Petroleum and Minerals has been “separated” from Saudi Aramco. While the long-term effect of this change are still unclear, in the short term the main effect will be that the Minister of Petroleum AAN is no longer Chairman of Saudi Aramco. More importantly it means that Saudi Aramco is now under the supervision of the Supreme Council of the Saudi Aramco Oil Company (SCSA), which is chaired by the newly named Deputy Crown Prince and Minister of Defense, HRH Mohamed bin Salman (MbS)-the King's son.

⁴² It can be noted, however, that Saudi Arabia, in spite of major efforts to develop its dry gas reserves, is still very reliant on associated gas to run its electricity, water desalination and industries. Saudi Arabia, at this time may need to produce 7 million or 8 million b/d to get enough gas to run its economy.

⁴³ Much of this section was written in May 2015 and published on line by the Arab Gulf Institute in Washington

- The CEO of Saudi Aramco, Khalid al Falih was relieved of his position at Saudi Aramco and promoted to Minister of Health. Nonetheless, he remains a part of Saudi Aramco through his promotion to Chairman of Saudi Aramco and appointment as a member of the SCSA.
- The SCSA has ten members, five of whom are from the board of Saudi Aramco and five other persons who have not yet been announced, except for the new Secretary General of the SCSA: Dr. Majid Al-Moneef, former Saudi representative to OPEC and former head representative of Saudi Arabia at OPEC.⁴⁴
- The Supreme Council for Petroleum and Minerals, which was headed by the King and placed oil policy under the aegis of the major princes, has been absorbed into the Council of Economic Development, which regroups a total of 13 inter-ministerial councils and commissions into a single administrative council linked to the Council of Ministers and presided over by MbS.

While these changes appear substantial at face value, closer analysis shows that their affect on oil policy may not be substantial at all.

One of the main changes is the fact that the Minister of the Ministry of Petroleum and Minerals (MoPM) is no longer the chairman of Saudi Aramco. The MoPM had been chairman of Saudi Aramco since 1983, under two previous oil ministers, allowing for the chairmanship to historically act as the MoPM's power base. Yet, with recent changes, this historical trend has been broken and Mr. Khalid al Falih, the former CEO of Saudi Aramco, has been named the chairman of OPEC's largest oil company.

Mr. Al Falih has also been named Minister of Health (MoH), The MoH is a very big job in Saudi Arabia, one that has been fraught with many difficulties and seen a large turnover of ministers, who were all expected to bring efficiency to the MoH, yet were unsuccessful. In this sense Al Falih will attempt to improve the MoH at a time when the royal leadership feels pressure to show the Saudi citizenry that they are able to provide fundamental social services, such as healthcare efficiently to the population. Hence, Mr. Al Falih, who is considered by many

⁴⁴ Kapsarc.org, page on governance-international advisory board-Al Moneef bio. Accessed on May 9, 2015

to be one of the best managers in Saudi Arabia, is now tasked with directing Saudi Aramco at a time of relatively low oil prices, as well as reorganizing a health system widely perceived as dysfunctional.

The new Supreme Council of Saudi Aramco (SCSA), which is now in charge of Saudi Aramco, is not as new or as revolutionary as it may initially appear. Of course, it comes on the heels of the cancellation of the Supreme Petroleum Council (SPC), which being merged into the Council of Economic and Development Affairs under the direction of MbS has caused broad and sustained speculation as to the degree of royal rule over oil policy. However, it should be noted that prior to the establishment of the Supreme Petroleum Council there had been a supervisory committee of Saudi Aramco also called SCSA. The SPC replaced this committee in order to provide the royal family with more input into the management of oil policy. Without being privy to the internal policies of Saudi Arabia, one could surmise that the senior princes at the time wanted more say in how much, and by what means, oil would be produced. However, very rapidly the technocrats on the SPC, principally AAN, were able to take back the management of oil policy, mainly because its production is subject to many financial and technical variables that internal politics could not readily account for. Hence, under the SPC, MoPM and Saudi Aramco remained mostly independent from the influence of senior princes. Looking at the makeup of the new SCSA, it seems likely that royal intrusion on oil policy will continue in as limited a scale as it was under the former system. The new SCSA's ten members have not yet been officially announced. However, it seems that five will come from the board of Saudi Aramco, thus including Khalid Al Falih, the chairman, and the new CEO of Saudi Aramco, the other three members from the Saudi Aramco side will be non-royal as the entire board is composed of commoners technocrats. Among the other five the new Secretary General of SCSA, Dr. Al

Moneef, will be one, AAN is likely to be another, two or three others are yet to be announced, and of course MbS, who is the only royal thus far on the council, will be another. In this sense, it seems that the SCSA in fact will be less under the control of the royal family than the SPC had been.

Many observers have speculated that the removal of AAN from the chairmanship of Saudi Aramco would mean that he would probably retire and be replaced by HRH Prince AbelAziz bin Salman (“AAbS”), another of the King’s son, who had been at MoPM for many years as number two to AAN. AAbS was promoted to Deputy Minister of MoPM, with rank of Minister in January 2015. However, now that the chairmanship of Saudi Aramco is removed from the minister, and that Saudi Aramco has been disassociated from the Ministry, it means that even if AAN retires, and AAbS become minister, he will have no role at Saudi Aramco and minimal role in defining oil policy, although he may get a seat on the SCSA.

While these changes appear substantive, in reality it may not bring any changes to the present oil policy of the Kingdom. The new structure mainly recognizes the importance of the technocrats and engineers in managing the oil and natural gas endowment of the country. In fact it seems to limit the role of the royal family on the management of these assets. Accordingly, the main difference with the previous structures, which had given prominence to AAN, is that the oil and natural gas industry of Saudi Arabia has been streamlined, with one less layer involved in the policy making and management of the national oil company.

Undoubtedly, the removal of AAN and any MoPM from controlling Saudi Aramco is a major change. It certainly means that AAN’s policy of risking low oil prices to force a change of policy by non-OPEC members, mainly Russia, may not be continued as aggressively as it has in the past few months. Yet does it mean that Saudi Arabia’s new oil leadership will cut

production? Most likely it does not. Not only have prices already been inching up, but a semi independent Saudi Aramco that is still controlled by technocrats will not stray far from AAN's views. Moreover, the new Saudi oil structure will not change many of the foundational factors driving the Kingdom's oil policy. It will not change the cash reserves of Saudi Arabia, nor will it change those of Russia. It will not influence US shale producers to produce less, especially at a time when their costs are also declining. Thus it is likely that slowly and quietly, the Saudis and Russians will find it accommodating to decrease production marginally and see prices increase. In this sense, if the classical economics of oil as an inelastic commodity are upheld, Saudi Arabia and Russia cutting supplies by only 5 percent could cause prices to go up by as much as 20 or 30 percent. Nonetheless, the key to this will be to do it slowly and quietly over time as not to spook the markets.

Another important consequence of the Kingdom's reorganization of the oil industry is what amounts to a breakdown of the MoPM from being a ministry in charge of oil and minerals to merely a Ministry of Minerals (MoM). This, in and of itself, could also lead to a major reorganization of the Kingdom's downstream energy industry, a cut in subsidies, and an increase in the price of natural gas. Mr. Al Falih, the new Chairman of Saudi Aramco was well regarded for having diversified Saudi Aramco from being merely the largest oil supplier in the world to becoming a large chemical company. Saudi Aramco now controls PetroRabigh a large refinery and chemical venture with Sumitomo. It also controls SADARA, a joint venture with Dow Chemical that is slated to be the largest chemical venture in the world. This project of \$20 billion is being completed this year and will produce massive amounts of advanced chemicals for both

export and local transformation by smaller companies.⁴⁵ Saudi Aramco is also investing in the growth of its refining capability. Its capacity is now at 2.6 million b/d and will increase to 3.3 million b/d as the new JV with Sinopec in Yanbu ramps up this year and the JV with SABIC in Jizan comes onto operation.

As previously mentioned Khalid Al Falih has now been named Minister of Health obviously to re-organize the MoH much like he did Saudi Aramco. When this is coupled together with the aforementioned streamlining of the oil and natural gas industries, it could indicate that Saudi leadership, mainly MbS who is in charge of the economy, is seeking to make the state run industrial sector more efficient. These changes, when considered in light of other changes that, while not related to oil, were still under the aegis of MbS may point to a massive effort by MbS to bring efficiency and professionalism to the system.⁴⁶ Moreover, a common thread to all the changes is the speed with which they are taking place. In this sense, there is clearly a major sense of urgency in the Kingdom to create jobs and ensure that the economy runs efficiently.

This sense of urgency and need for efficiency may translate into further important changes for the state owned enterprises, if only to trigger more interaction with the private sector and ultimately create more jobs. In the spirit of improving efficiency, one could perhaps expect Saudi Aramco's activities to focus not only on crude oil and refining, but increasingly in chemicals as well. As mentioned, Saudi Aramco is already in control of PetroRabigh, a very large Public Private Partnership (PPP) in joint venture with Sumitomo, and where the original \$ 10 billion project was is presently being doubled in size. Moreover, as a PPP, 30 percent of the

⁴⁵ The advanced chemicals to be produced by this joint venture mainly consist of amines glycol ethers, isocyanates, polyols and performance plastics

⁴⁶ MbS as Minister of Defense, previously as Deputy to his father, replaced Prince Khalid bin Sultan and chief of the military with a general from outside the Royal Family. Later, they named Mr. Mohammed Al Madi, the man who steered SABIC into becoming the number two chemical company in the world, to manage military investments.

project's ownership is in the hands of the public at large. SADARA, the JV with Dow Chemical is also expected to float 35 percent of the capital to the public through shares on the Tadawul exchange in Riyadh. Additionally, SADARA will be expected to help smaller firms develop the capability to take some of its productions and transform them into marketable products for both domestic use and export. The salient theme throughout all these endeavors is the concerted effort to create as many good downstream manufacturing jobs for Saudis.

By viewing the institutional and structural changes in the oil sector as an attempt to streamline production and decision-making, it becomes increasingly plausible to imagine the same re-structuring being extended into other downstream industries, such as the fertilizer industry. SABIC, which has become the second largest chemical company in the world is now three main product lines. The fertilizer division, which makes methanol, ammonia, and urea, exports worldwide. The division is in a joint venture with Ma'aden, the mining company, which extracts phosphate rock and works with SABIC to make DAP, a high value added fertilizer. The Ma'aden-SABIC JV is called Ma'aden Phosphate Company (MPC). Ma'aden is also in joint venture with Mosaic of the US to start a similar production using phosphate from another mine. It would make some sense to have all the fertilizers of the Kingdom manufactured and marketed worldwide by the same company. SABIC also runs a large steel plant, which could fit nicely in terms of research and marketing with the 850,000 ts/y aluminum plant presently run by Ma'aden in JV with Alcoa. In this sense, it is plausible to expect a consolidation of the fertilizer industry under one company, perhaps under Ma'aden or under SABIC. Similarly, one could perhaps expect SABIC's chemical activities to be regrouped with those of Saudi Aramco, to have only one fully integrated chemical giant in the Kingdom. This chemical giant would be getting its main raw materials- natural gas and naphtha from Saudi Aramco. This would allow for

streamlining under the Saudi Aramco umbrella, a bit like ExxonMobil runs a huge chemical division, or entirely under SABIC's as an efficient chemical company.

Hence, it is interesting to note that many of the changes to the energy sectors have not been as dramatic as it could appear. In spite of what was mentioned in many reports on the Saudi re-organization, the reality is that the royal family will not dominate the oil sector anymore than it has in the past. MbS will have a strong say on overall policy, but being very occupied by his positions as Minister of Defense and Chair of the Economics Committee, his time will be very limited and, as was the case when the King officially chaired the now defunct Supreme Petroleum Council, policy will be dominated by the brilliant technocrats at Saudi Aramco. Hence, the rapid reorganizations at the top of the country and the shuffling of the main technocratic jobs at Saudi Aramco and the Ministry of Petroleum and Minerals mostly points to the fact that a new generation of Saudis, royals and commoners alike, have taken over many important economic organizations. The Kingdom will continue to emphasize creating more domestic employment and in order to do so it must control its income and therefore its control of the oil markets worldwide as it has for the past fifteen years. Hence, whatever happens to the actual leadership of the Ministry of Petroleum and Minerals, it is most likely that Saudi Arabia will continue the oil policies of AAN in order to regain control of the oil markets.

V. Conclusion

The growth of non-conventional oil extraction methods such as shale, tar sands, and bitumen, while significant, do not yet threaten the dominance of conventional oil producers. Nonetheless, with the increasing development of extraction technology, production from both conventional and non-conventional sources has increased, creating an oil glut which has threatened the market share of conventional producers like Saudi Arabia. It is in this sense that

Saudi Arabia, as one of the world's largest and cheapest producers, has taken it upon itself to force conventional producers to cooperate in order to maintain their respective market shares in a period when technology shifts the foundation of oil extraction. This drive is made possible not only by Saudi's very low production costs, but its massive untapped production capabilities and the fiscal wherewithal to withstand years of budgetary deficit. In this sense, the world's oil markets have once again found themselves directed by the actions of the Kingdom of Saudi Arabia.

OPEC members with limited treasury reserves, and non-OPEC countries with lesser cash cushions than Saudi Arabia, will feel the pressure to cut production in order to see prices increase. This pressure is likely to be severe in the case of Russia who has not only been singled out by Saudi Minister Naimi but is also experiencing a period of economic hardship. Nonetheless, as with the 1998/1999-oil fluctuation, the cuts do not have to be very large. This is especially true if, as hinted by HE AAN, the cuts were matched by Saudi Arabia. The laws of economics for inelastic commodities are such that a small cut in production could result in larger gross income. If this were the case, a decline in production may actually result in a larger income increase than in 1999, when the producers, mainly Norway and Mexico, in great part due to technical reasons and not necessarily by political expediency, cut production by less than half a million b/d, an amount matched by Saudi Arabia. The cut at the time triggered a doubling of prices in a very short period of time. The low prices of the late 1990s and early 2000 ended up being partially responsible for the economic growth of the early 2000s, which led to a substantial increase in demand mostly from the Far East, which in turn led to the prices peaking in 2008 to an unsustainable level above \$120. This level of prices did not cause the financial crisis of 2008/2009, but certainly contributed to the major economic crisis that ensued. Moreover, the

high prices certainly contributed to the large investments into non-conventional production. This cause and effect likely remains a consideration of conventional producers, who do not want to bolster prices too much for fear of spurring investment non-conventional and renewable sources.

Additionally, even with the growth of non-conventional shale plays, the US is still importing over 8 million b/d of crude and re-exporting 3 million b/d of products. This often leads observers to forget that the US is not fully self-sufficient and is not about to become so, regardless of how successful the fracking of shale oil is. Therefore, ultimately, the main producers of conventional oil Russia and Saudi Arabia, will continue to bear the brunt and the responsibilities of influencing the price of oil. As has been depicted, there appears to be little doubt that Saudi Arabia has the ability to sustain lower prices, longer than Russia. Moreover, even with the recent reorganizations in Saudi Arabia's energy sector, the Kingdom's market-shaping policies are likely to continue. Hence, if Saudi Arabia is successful in forcing a decrease in production from the least efficient conventional non-OPEC members, it will bring the market back into balance and prices may regain its pre-2014 levels—a development that would benefit all producers, regardless of production method or OPEC membership. With this in mind, it is likely that the Kingdom will regain control of the market and, as it has in the past, work for a stable price; one which will neither destroy the economies of the world, nor bankrupt the producers.