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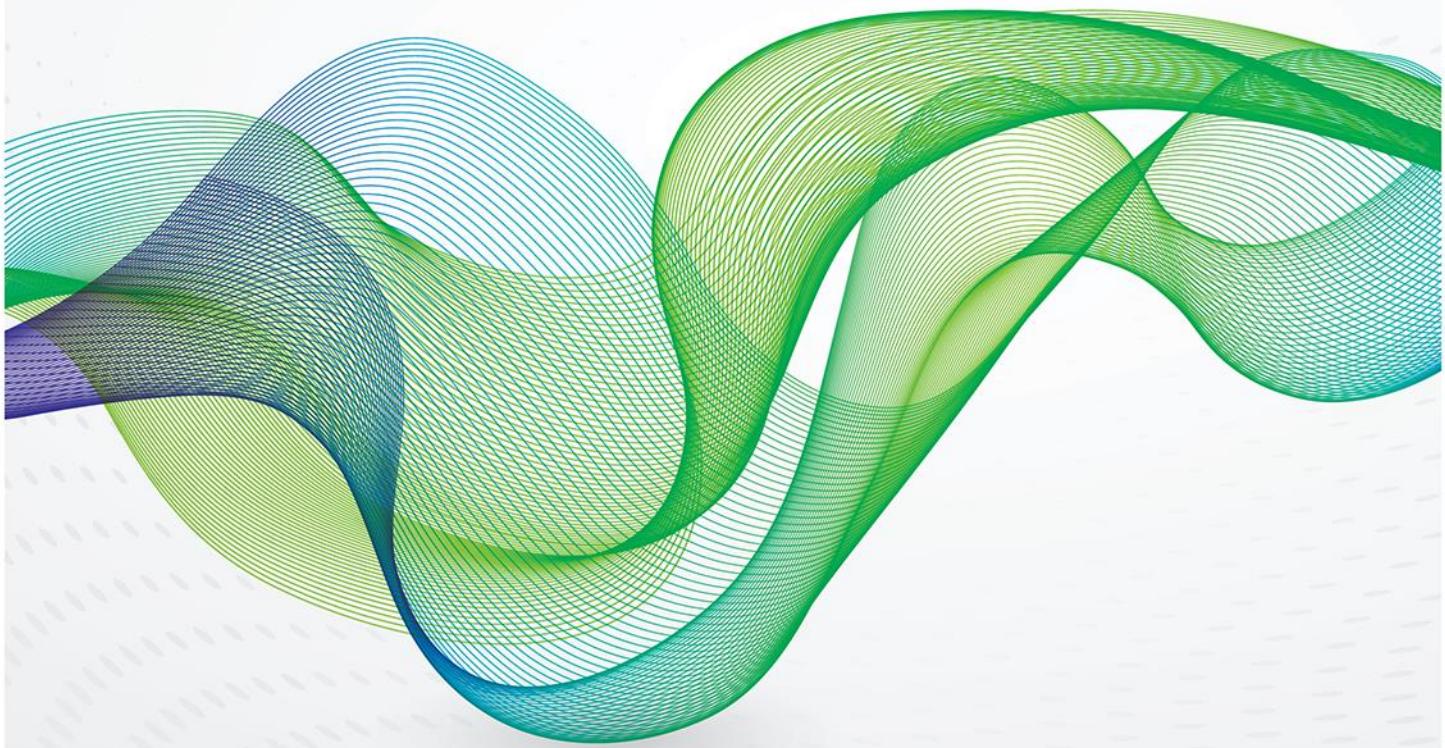
Saudi Arabia:

Shifting the Goal Posts



OXFORD ENERGY COMMENT

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Introduction

While the market has been focused on short-term issues such as OPEC's success in rebalancing the market in 2018; its exit strategy after the expiry of the deal; and the risk that the market over-tightens, OPEC and its dominant player Saudi Arabia have been keen to shift the market focus towards the longer term. Reducing inventories to the five-year average is no longer the key primary objective for OPEC, with the Saudi Energy Minister, Mr Khalid Al-Falih calling 'to define the real target more precisely' and 'to identify more clearly what is the normal level', something that 'still needs to be done' before the next OPEC meeting in June. The key message that emerged from the OPEC/Non-OPEC Joint Ministerial Monitoring Committee (JMMC) convened in Muscat on 21 January 2018, is that producers shouldn't limit their efforts to 2018 and instead should aim to extend the *declaration of cooperation*[1] beyond 2018 in order to assure 'stakeholders, investors, consumers and the global community that this is something that is here to stay', and that producers 'are going to work together' within a longer framework for cooperation.[2] Mr Al-Falih acknowledged that the mechanism for long-term cooperation hasn't been determined yet and that extending the cooperation framework wouldn't necessarily mean sticking to countries' current production targets.

The latest signal is a very powerful one as it signifies, as Liam Denning puts it, that 'OPEC has moved on already'.[3] It is also a warning to those who expect an abrupt or disorderly exit from the output deal to reconsider their positions. More importantly, it is a clear signal that Saudi Arabia is not only interested in the short-term rebalancing of the market, but is also keen to stabilise long-term expectations about long-run oil prices; and producer behaviour at times of increased supply and demand uncertainty and during structural transformation in the market. In a world in which many are expecting oil demand to peak in the next few decades, the monetization of oil reserves as quickly as possible is being presented as the only 'rational' policy for low-cost producers, if they are to avoid holding stranded assets or failing to maximize their long term revenues. This scenario, in which producers compete for market share, is extremely bearish for oil markets both in the long and the short term, as long-term expectations will eventually feed into short-term expectations. By calling for cooperation beyond 2018, Saudi Arabia is charting another route for the market, where OPEC+ permanently plays an active role in managing market balances and participants' expectations and where revenue maximization rather than output maximization is the main guiding principle. This signal could not be timelier.

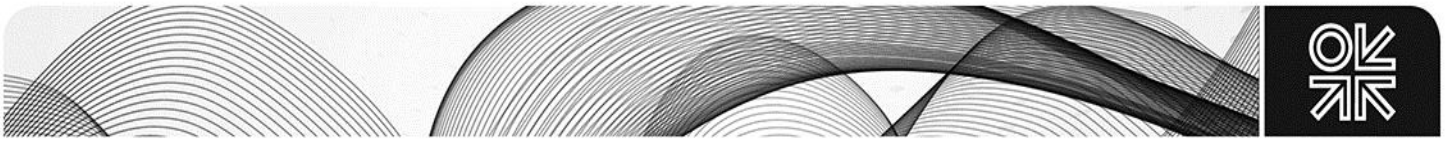
Oil Scarcity No More

For much of the past of few decades, the debate on 'peak oil' referred to the concept of peak oil supply, in which oil production after rising over many years would enter a phase of decline. The decline itself was never a problem if it coincided with a decline in oil demand, for instance due to technological advancements or the entry of oil substitutes. A fundamental feature of resource exhaustibility has been that the supply of the resource is limited relative to its demand. In terms of oil, the concern was that the world's oil reserves would not be sufficient to meet the relentless growth in

[1] The Declaration of Cooperation was announced following the Joint OPEC-Non-OPEC Producing Countries Ministerial Meeting held in December 2016 and was effective for six months. This was then extended at the second Joint OPEC-Non-OPEC Producing Countries Ministerial Meeting in May 2017. At the third Joint OPEC-Non-OPEC Producing Countries Ministerial Meeting held in November 2017, the Declaration of Cooperation was amended so that it will take effect for 2018. Since then, there have been some efforts aiming at turning the Declaration of Cooperation into a long-term framework for cooperation.

[2] This has been recently echoed by the UAE Oil Minister and OPEC President Mr Suhail Al-Mazrouei where he recognises 'the importance of institutionalising a longer-term framework…. That could go beyond the short-term and look at some of the broader challenges as well as opportunities that the oil industry is expected to face in the years and decades ahead. Argus Global Markets, February 2, 2018.

[3] Liam Denning, 'Stop Trying to Guess When OPEC Will Hit Its Target', Bloomberg 23 January 2018. https://www.bloomberg.com/news/articles/2018-01-23/opec-supply-cut-target-stop-trying-to-guess-the-end



global oil demand in the long term. This feature underpinned key models characterizing oil markets, oil prices and the behavior of governments, producers and consumers.

One key feature of the theory of exhaustibility is that oil prices should command a scarcity rent. Another important characteristic of these models is the potential for the reserve holder to ration oil supplies. Hotelling's pioneering work[4] which forms the basis of the literature on exhaustible resources is mainly concerned with the following question: given demand and the initial stock of the non-renewable resource, how much of the resource should be extracted every period so as to maximize the profit for the owner of the resource over its life? Hotelling shows that in a competitive market, the optimum extraction path would be such that the price of non-renewable resource will rise over time at the interest rate *r*.[5] The theory of exhaustible resources has influenced many energy economists' thinking, with many using this theory as the basis for understanding the oil market, concluding that the oil price must rise over time.

However, many remained unconvinced arguing that the framework of resource exhaustibility does not provide useful insights into the oil price issue. The main criticism was often directed towards the concept of exhaustibility of resource and that of fixed stock. Rather than assuming a fixed stock of the resource, for instance, this view argues that oil reserves should be treated in a similar vein to inventories, which are continuously depleted through extraction but continuously augmented through exploration and development.[6] According to this view, the issue is not one of exhaustibility but of investment in accumulating inventories and the costs involved in finding and developing new reserves. Indeed, for years now, oil reserves and resources have grown faster than oil consumption.

Alongside supply, the prospects for oil demand growth have also changed. Despite robust global oil demand growth in recent years, which expanded by 11 mb/d since the 2008 global financial crisis (2009-2016), there has been a flurry of recent studies predicting that oil demand will peak as soon as within the next decade. Governments' oil substitution policies driven by concerns about energy security, climate change and the deterioration of air quality, new technological developments in transport, and improvements in energy efficiency, all suggest that oil demand growth is likely to slow down over the next few decades (although the timing when oil demand growth will start slowing down or turn negative is still highly uncertain and depends on many assumptions).[7]

The changes in supply and demand prospects switched the pendulum from perception of oil scarcity to oil abundance with potentially important implications on producers' behavior. [8] To begin with, given that oil supplies are not limited relative to demand, there is no such a thing as a scarcity rent that producers could capture. Furthermore, the changes in supply and demand patterns mean that while the extraction of oil will continue to generate rents, the way those rents are distributed through the supply chain will also change, with producing governments eventually capturing a smaller share. Also a world of abundance will induce a shift in the supply strategies of resource owners: there will be greater focus on ensuring they monetize their assets as quickly as possible so as not to be left with stranded assets. In effect, rather than engaging in a dynamic optimization of the extraction of the reserve base over a long period of time, the owners of the reserves are incentivized to extract oil resources today. This increases competition among low cost producers and between high and low cost producers, as low cost producers don't have the luxury of allowing the holders of high cost reserves to develop their resources first.

[4] Hotelling, H. 1931. The economics of exhaustible resources. *Journal of Political Economy* 39 (2).

[5] This result is highly intuitive. The owner of the resource has two options: either to extract the oil today or to keep it in the ground for future extraction. Any amount extracted today is not available for extraction in the future and any resource left in the ground can command a higher price in the future. If the owner extracts the resource today, he or she can use the proceeds and invest them at an interest rate *r*. If the price of oil is expected to rise faster than *r*, then the owner has the incentive to hold on to the resource. If all suppliers behave in a similar manner, the supply would go down causing the current market price to rise. Given this equilibrating mechanism, the optimum extraction trajectory is the one in which the oil price increases in line with the interest rate.

[6] Alderman, M.A. 1990, Mineral depletion, with special reference to petroleum. *Review of Economics and Statistics,* **72**(1).

[7] Spencer Dale and Bassam Fattouh, 'Peak Oil Demand and Long-Run Oil Prices', OIES Energy Insight, January 2018.

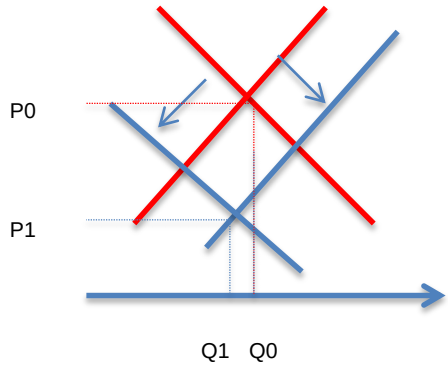
[8] Spencer Dale and Bassam Fattouh, 'Peak Oil Demand and Long-Run Oil Prices', OIES Energy Insight, January 2018.

Is The Only Way Down?

In a framework in which oil demand slows down and producers pursue a competitive strategy to monetize reserves, the oil price is projected to follow a downward path until it is equalized with the marginal physical cost of the lowest cost producer. One simple way to characterise this simplistic scenario is to use a global oil demand-supply framework. As a result of climate change policies, technological breakthroughs in the transport sector, efficiency measures, and changes in consumer preferences, oil demand growth will eventually turn negative and the demand curve will shift downwards as shown in Figure 1 below. The downward shift in the demand curve could be gradual or abrupt, though many recent commentaries indicate that the latter scenario is more probable as technological developments tend to be 'disruptive'.[9] On the supply side, oil producers, especially those with massive reserves, have the incentive to shift to a 'pump it while you can' modus operandi as they rush to monetize their reserves. No producer wants to be left with stranded assets, even if quick monetization of reserves results in a sharp decline in government revenues. In this framework, oil producers have no incentive to cooperate in order to boost revenues; quite to the contrary, producers will engage in a market-share war with the sole objective of maximizing output, and in this war, those producers with the lowest cost reserves or those that manage to reduce costs sharply, will prevail. In terms of the simple framework, the supply curve will shift massively outward, causing a sharp decline in the oil price.

What will be the long-run equilibrium price? Since some see the trajectory of the oil market following that of coal and 'oil could become the new coal', then 'oil prices could converge to the level of coal prices, about $15 per barrel in 2015 prices by the early 2040s'.[10] To be more specific, the long-term equilibrium price should equate with the marginal cost of the lowest cost producer plus the return on capital in developing and producing these reserves.

Figure 1: Shifts in Oil Supply and Oil Demand Curves



A key question is whether this new low oil price represents a stable long-run equilibrium for the oil market. The answer is no. One key element missing in this framework is feedback effect. The implicit assumption here is that even in a low price environment, investment will continue to flow into the oil sector, enabling even those countries that are highly reliant on oil revenues, to maintain a stable environment for investment and to continue to expand productive capacity and put additional barrels

[9] For instance, a recent report predicts that due to deep disruptions in the transport sector, oil demand will peak at 100 mb/d by 2020, dropping to 70 mb/d by 2030 with 'a catastrophic effect on the oil industry through price collapse ' which 'may lead to the destabilization of oil-producing countries and regions with high dependence on oil rents'. See, James Arbib and Tony Seba, 'Rethinking Transportation 2020-2030', A RethinkX Sector Disruption Report, May 2017. In a similar vein, a new study by the IMF argues that 'the return of the electric car and its adoption, like that of the motor vehicle in place of horses in early 20th century, could cut oil consumption substantially in the coming decades and 'that oil as the main fuel for transportation could have a much shorter life span left than commonly assumed'. See Reda Cherif, Fuad Hasanov, and Aditya Pande, 'Riding the Energy Transition: Oil Beyond 2040', IMF Working Paper, May 2017.

[10] Reda Cherif, Fuad Hasanov, and Aditya Pande, 'Riding the Energy Transition: Oil Beyond 2040', IMF Working Paper, May 2017.

in the market. In effect, this is betting on the ability of key oil exporters to adjust their economies to a sharp decline in oil revenues and diversify their economies without any serious economic, social and political repercussions. In other words, the transformation process to a more diversified economy that is less reliant on oil is assumed to be a seamless one (in which case oil exporters should not worry about oil demand peaking, as these countries will be not affected by such a non-event).

Also in this framework, there is no room for a rebound in demand or for multiple peaks or a long-term plateau in global oil demand; there is only a unique global peak after which oil demand can only decline. Two implicit assumptions are needed to 'kill' the rebound effect. First, governments will impose a global tax or carbon price to keep oil uncompetitive relative to other energy sources. Second, the changes we are about to witness in the transport sector are deep and structural, which will result in permanent oil demand reduction (or demand destruction) regardless of the price, so the impact of oil price movements on consumer behavior will be muted or even non-existent. In other words, in such a world, absolute and relative prices of fuels play no role in shaping oil demand patterns. These patterns will be dictated by policy, technology and change in consumer preferences, which in turn will not be influenced by prices.

Is There an Alternative Narrative?

In the above framework, there is no room for cooperation among producers; competitive forces will prevail, even if this shift to increased competition results in a massive fall in revenues. It is in this context that Al-Falih's signal is important: it charts an alternative route in which oil producers would continue to cooperate and restrain output, even as the oil market becomes more competitive. The alternative high-output/low-price strategy is too painful for countries whose economies are undiversified and highly reliant on oil revenues. The high-output/low-price strategy could result in higher revenues in the long run if existing sources of supply exit the market or potential suppliers are deterred from entering, but as Mabro argues 'prices have to fall a long way and price expectations have to remain depressed for a long time for a significant improvement of the market share… No oil-exporting country has the financial resources which enable it to sustain such a policy.'[11] In other words, the heavy reliance of producer economies on oil revenues imposes a constraint on the ability of producers to pursue a high-output/low-price strategy. As argued somewhere else by Dale and Fattouh (2018), 'a low-cost oil producer cannot sustainably seek to gain market share by adopting a higher volume, lower price strategy if it requires selling oil at a price below its total cost of production (including social costs). If the oil price doesn't cover an economy's total costs, it implies that some aspect of the economy is unsustainable'. [12]

The timing of the signal is also important as it is aimed to ease concerns about a disorderly exit from the OPEC+ deal after its expiry and to stabilize expectations around a higher long-term oil price, which will eventually feed into short-term expectations. Also as a low cost producer with a stable business environment and efficient energy industry, Saudi Arabia is sending a signal that it is not concerned about being left with stranded assets if it pursues this cooperative strategy, either because the Kingdom believes that demand will continue to grow into the foreseeable future and/or its oil will remain competitive even in a carbon-constrained world.

While Saudi Arabia is charting for the market an alternative story based on cooperation with other producers lasting 'decades and generations',[13] the challenges it faces are immense. To start with, the existing framework for cooperation is not well developed to deal with producers with different revenues needs and different degree of financial resilience. Also monitoring and enforcing compliance within this existing framework is extremely difficult and will get harder as time passes by and as more countries join. It also requires that OPEC constantly manage the market, based on newly-developed and clearer criteria. Targeting the level of inventories and reducing it to its five-year average is

[11] Mabro, R., *The Oil Price Crisis of 1998*. SP 10, Oxford: Oxford Institute for Energy Studies.
[12] Spencer Dale and Bassam Fattouh, 'Peak Oil Demand and Long-Run Oil Prices', OIES Energy Insight, January 2018.
[13] The Saudi Energy Minister has recently declared that Saudi Arabia's alliance with Russia will last for 'decades and generations'.

obviously not adequate for many reasons including the fact that it is backward-looking indicator and most of the visible data on stocks are for OECD countries, while most of the demand growth is in non-OECD where data on stocks are scarce. Also any cooperative action must go beyond output to include long-term investment plans; rapid investment and bringing on new capacity beyond what is needed in the market creates problems similar to the high-output/low-price strategy. With many countries within OPEC and outside OPEC having ambitious plans to increase productive capacity, coordination on investment will be extremely difficult, if not impossible. Also stabilizing expectations around a higher oil price will not only encourage US shale producers to increase output, but would also encourage investment in the long-term capital-intensive cycle reducing OPEC's share overtime. And above all, long-term cooperation requires unprecedented exercise of leadership to maintain the coalition among producers during good and bad times.

The above suggests that maintaining cooperation in a more competitive world is very challenging and while producers have the incentive to cooperate, the cooperation between producers will take a different shape. For instance, producers should not only be concerned with low oil prices, but also be proactive when prices are too high, as high oil prices induce strong supply and demand responses. In other words, the cooperative solution, which results in a higher oil price, is not without its costs and those costs need to be managed by ensuring that prices don't rise too high. But this does not imply that cooperation is not possible or sustainable for the simple fact: As long as their economies are not diversified, the alternative of non-cooperation is also not sustainable. In a world where the prospects of oil demand are highly uncertain, the immediate benefits from pursuing cooperation are more visible and certain than pursuing the alternative strategy of fast monetization of reserves, the long-term benefits of which remain highly uncertain but the short-term costs are high and immediately visible.

Saudi Arabia has sent a clear signal that until further notice it is willing to play the role of a 'market manager' to assure players that the market is not left to its own devices. It is also reinforcing the message that producers can't afford to adopt the non-cooperative path, warning about the perils involved in maximizing output at whatever cost. The market is yet to fully internalize the signal and will be looking closely as to whether the Kingdom will follow up with concrete steps to turn the signal into a credible strategy.