THE OXFORD INSTITUTE FOR ENERGY STUDIES

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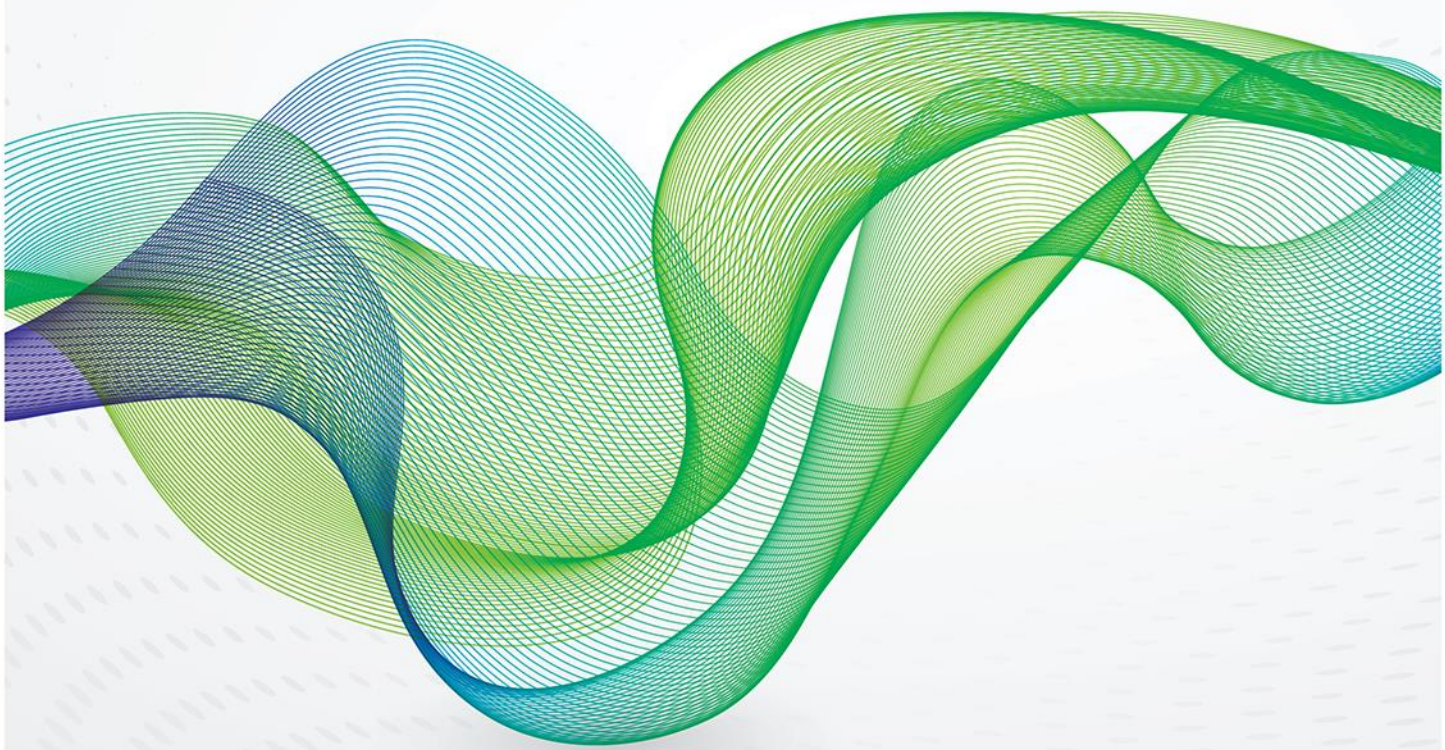
# $5^{+1}$ Key Facts about the OPEC Declaration of Cooperation



OXFORD ENERGY COMMENT

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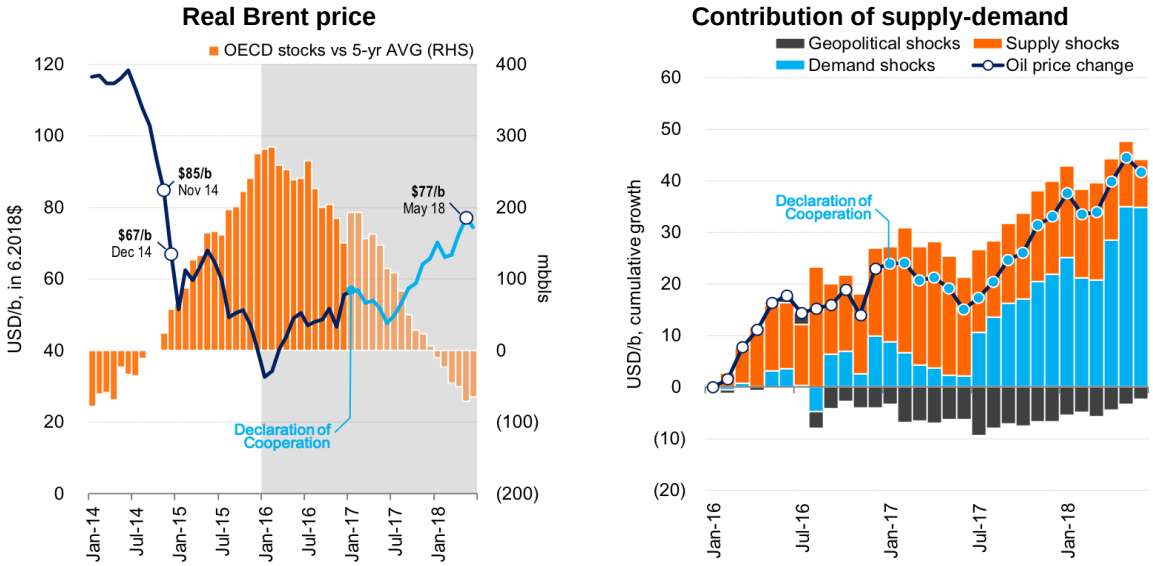
## Introduction

The OPEC/NOPEC output cuts of 1.8 mb/d under the historic Declaration of Cooperation (DOC), aggravated by involuntary cuts, and unexpectedly robust oil demand growth in OECD and non-OECD alike, were the main contributors to the market rebalancing and the return of OECD stocks to below their 5-year average (see Figure 1)[1] These developments in conjunction with the heightened geopolitical risks that have been battering the oil market in recent months, prompted a widespread debate about the DOC's future.[2] However, speculation was short lived following a series of OPEC meetings in June 2018 (the 7th OPEC International Seminar, the OPEC 174th Ordinary Meeting and the 4th OPEC/NOPEC Ministerial Meeting), during all of which the message was loud and clear: Beyond the important task of rebalancing the market in the short-term, the Declaration of Cooperation is also viewed as a long-term objective.[3] Indeed, against expectations of 'OPEC's worst meeting ever',[4] Saudi Arabia and Russia kept the OPEC+ deal alive amid textbook diplomacy and 'constructive ambiguity'.[5]

**Figure 1: Market rebalancing, Jan 16 – Jun 18**




Source: IEA, OIES.

But as the DOC approaches its expiration date in December 2018, the future of the historic joint effort of the now 25 OPEC and non-OPEC oil-producing countries, has moved to the top of the producers' agenda. The next Joint Ministerial Monitoring Committee's (JMMC) meeting on September 23rd in Algiers, could provide some clues regarding OPEC/NOPEC long-term plans, as the oil ministers of Oman, Russia, Algeria, Kuwait, Venezuela and Saudi Arabia will be reviewing '*the framework of cooperation to be established in 2019 and beyond*'.[6] The fact that the meeting marks the two-year anniversary of the OPEC Algiers Accord of 2016, the precursor to the intense consultations between

[1] B. Fattouh and A. Economou (2018), The Crude Oil Market in 2018 & 2019: How Did We Get Here and What Next? OIES Presentation, September. Access: https://www.oxfordenergy.org/publications/crude-oil-market-2018-2019-get-next/
[2] B. Fattouh (2018), Is This the End of the OPEC+ Deal? Oxford Energy Comment, May. Access: https://www.oxfordenergy.org/publications/end-opec-deal/
[3] See for instance, OPEC, 'Opening address to the 174th Meeting of the OPEC Conference', Press Releases 2018, June 22. Access: https://www.opec.org/opec_web/en/press_room/5071.htm
[4] See for instance, Bloomberg, 'Coming Soon: OPEC's Worst Meeting Ever, Part 2', 3 June 2018. Access: https://www.bloomberg.com/view/articles/2018-06-03/coming-soon-opec-s-worst-meeting-ever-part-2
[5] B. Fattouh and A. Economou (2018), What to make of Saudi Arabia's recent shift in its output policy? Oxford Energy Comment, August. Access: https://www.oxfordenergy.org/publications/make-saudi-arabias-recent-shift-output-policy/
[6] OPEC, 'JMMC continues to monitor developments in the oil market', Press Releases 2018, August 30. Access: https://www.opec.org/opec_web/en/press_room/5128.htm

the OPEC/NOPEC producers leading to the Declaration of Cooperation, fuels discussions that this meeting may as well be a prelude to preliminary, yet formal, talks about institutionalising the DOC over the long-term.[7]

The meeting builds on the solid foundations of the DOC. Although OPEC and non-OPEC producers have collaborated in the past, albeit on a smaller scale, the DOC is a landmark agreement, due to the number of participating oil producers as well as the monitoring procedures put in place. Assessing its effectiveness beyond compliance levels, as well as evaluating the dynamics underlying the success of the Agreement's current framework and its members' need for institutionalising a long-term cooperative and proactive oil policy framework, is of paramount importance for understanding what lies ahead and why oil policy will continue to matter in years to come.

This Energy Comment discusses $5^{+1}$ key facts about the Declaration of Cooperation that sheds light on the prospects and challenges in OPEC/NOPEC producers' pursuit of cooperation. Analysis builds on the structural VAR model of the world oil market due to Economou et al. (2017)[8], and a new methodology simulating counterfactual (what-if) outcomes introduced by Kilian (2016)[9]. The latter allows us to estimate how the real Brent price would have evolved in the absence of the OPEC/NOPEC participation in the output cut deal and hence, it allows us to isolate and quantify the effectiveness of the DOC in market rebalancing, and assess its implications for the oil producers participating in the Agreement.

## Fact 1: The DOC would not have prevented the 2015-16 price collapse

Figure 2 shows the actual evolution of the real Brent price along with the counterfactual evolution of the Brent price from January 2014 to June 2018, had the OPEC/NOPEC producers implemented the DOC Agreement in January 2015. The counterfactual path of global oil production is obtained by adjusting the actual monthly global production from January 2015 to June 2016 by the actual level of $OPEC^{+}$ output cuts (voluntary and involuntary) observed from January 2017 to June 2018; *all else remaining equal* (see orange bars). From July 2016-onwards we assume that the $OPEC^{+}$ output cuts are sustained on target at 1.8 mb/d.

As is evident from Figure 2, if the OPEC/NOPEC producers had reached and implemented the current DOC agreement starting in January 2015, not only would they have failed to reverse the price collapse, but it would have taken another round of new cuts in 2017 for the oil price to recover to current levels. In January 2016 the Brent price would have collapsed to $38/b (compared to $32/b actual) and in 2017 and 1H2018 the annual average Brent price would have been $6/b and $15/b lower than the actual observed ($57/b and $72/b respectively). In examining what it would have taken for the OPEC/NOPEC producers to rebalance the market, results show that they would have needed to *double* their output cuts in January 2017 to 3.6 mb/d (see blue bars).[10] This would have been a nightmare scenario, not only in implementing these cuts, but for negotiating and allocating the individual quotas needed to make them, putting the very existence of the DOC at risk.

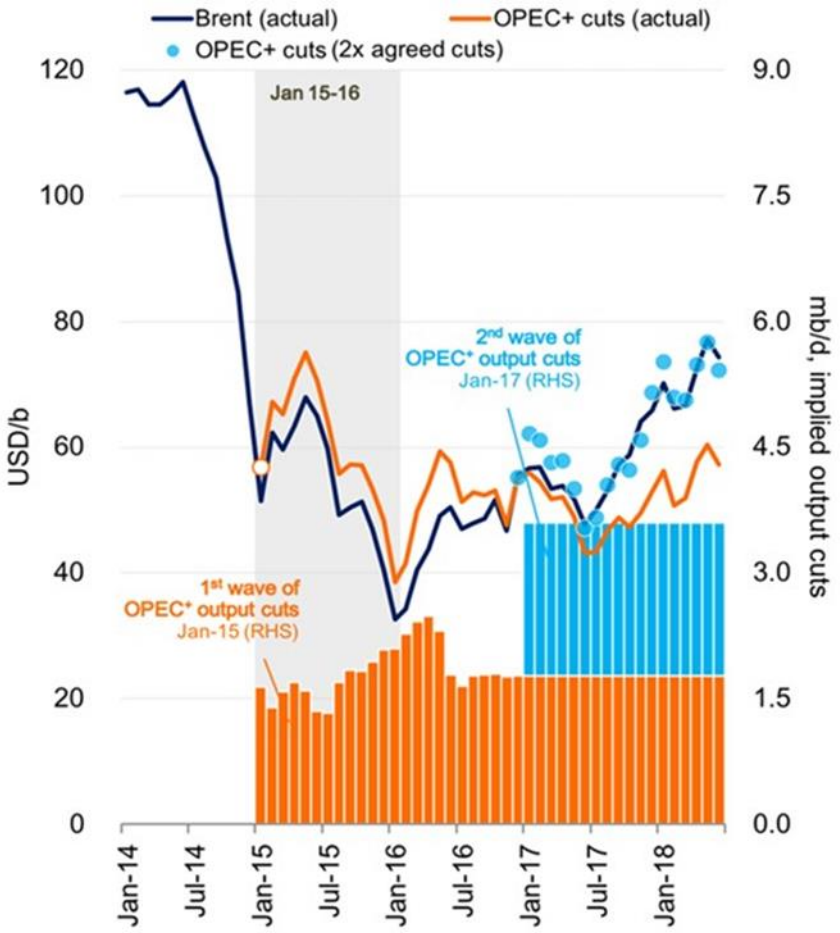
[7] See for instance, Reuters, 'OPEC, non-OPEC seek to formalize oil policy coordination: draft charter', 30 August 2018. Access: https://www.reuters.com/article/us-opec-oil/opec-non-opec-seek-to-formalize-oil-policy-coordination-draft-charter-idUSKCN1LF1HS

[8] A. Economou, P. Agnolucci, B. Fattouh and V. De Lipsis (2017), A Structural Model of the World Oil Market: The Role of Investment Dynamics and Capacity Constraints in Explaining the Evolution of the Real Price of Oil, Oxford Energy Insight: 23, December, Oxford: The Oxford Institute for Energy Studies. Access: https://www.oxfordenergy.org/publications/structural-model-world-oil-market-role-investment-dynamics-capacity-constraints-explaining-evolution-real-price-oil/

[9] L. Kilian (2017), The Impact of Fracking Boom to the Arab Oil Producers, *Energy Journal* 38(6), December.

[10] As argued in Fattouh (2017), one of the key factors behind OPEC's decision in 2014 to leave it to the price mechanism to clear the market is the large supply-demand imbalance which required that OPEC implements massive cuts to balance the market. See Fattouh (2017), Saudi Arabia: The Next Move, Oil Magazine, March.

**Figure 2: Brent price outcomes under alternative DOC scenarios, Jan 14 – Jun 18**



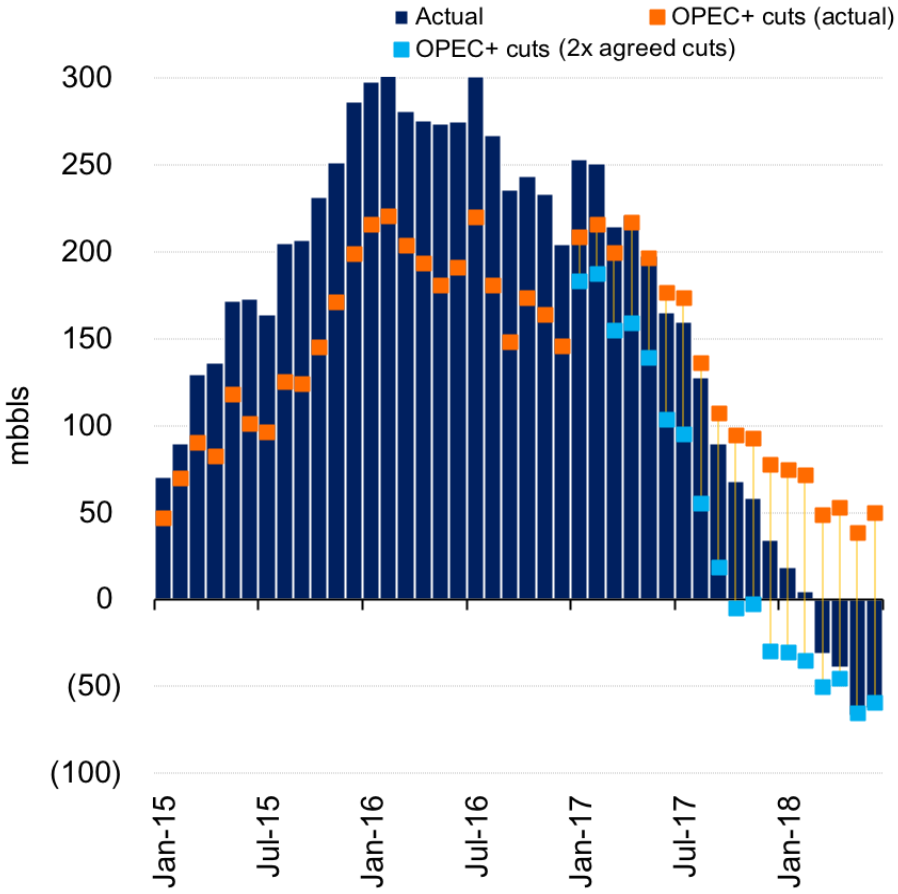

Source: OIES.

Two important observations stand out. First, these results provide further evidence in support of the decision by OPEC in November 2014 to leave it to the price mechanism to clear the market and reduce the imbalance, instead of shouldering the burden to balance the market by cutting output.[11] Even after considering the involuntary cuts observed throughout 2017–18 and the halt of US shale growth in 2016, stocks would have kept rising and the market imbalance would have continued to deepen due to weaker-than-expected global demand conditions (see Figure 3). In others words, in the absence of supportive demand, OPEC+ would have needed deeper output cuts to clear the stocks overhang than pledged in 2017. Moreover, given the oil exporters' dependency on oil revenues, had OPEC intervened and adjusted its production it would have seen both its market share and oil revenues decline, aggravating the dampening of its members' fiscal positions, growth prospects, and sizeable fiscal buffers even further.[12] Second, it is immediately apparent that the DOC has never been tested under unfavourable market conditions (declining oil demand amid increasing non-OPEC supply) and long-term cooperation will most certainly have to weather at least one such recessionary phase. At this potentially most challenging time, the DOC or any other such producers' cooperation will be truly important.

[11] As argued in Fattouh (2017), the timing of the output cut matters. Specifically, as low prices started having their impact on demand and supply and as the market tightened, the potential gains from an output cut increased over time. See Fattouh (2017), Saudi Arabia: The Next Move, Oil Magazine, March.

[12] For example, despite increasing market share in 2016, EIA estimates that OPEC oil revenues declined by a remarkable 15%, falling to their lowest level since 2004. (EIA, 'OPEC net oil revenues in 2016 were the lowest since 2004', Today in Energy, 19 May 2017).

**Figure 3: OECD stocks vs 5-yr AVG under alternative DOC scenarios, Jan 15 – Jun 18**



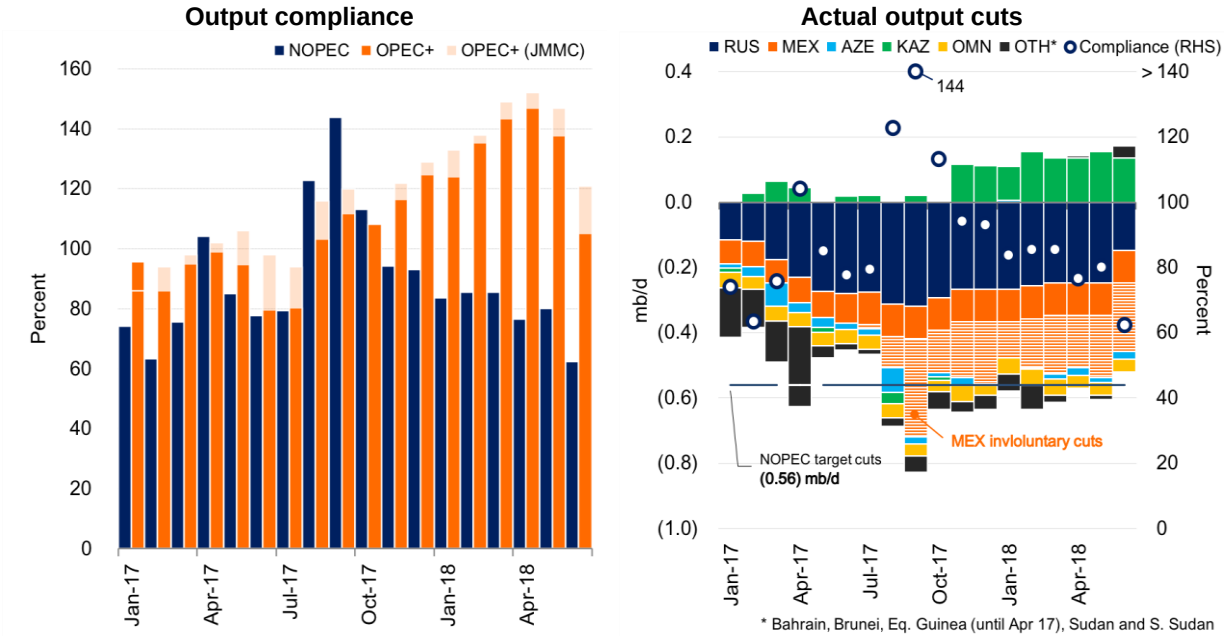

Source: IEA, OIES.

## Fact 2: DOC monitoring and enforcing compliance exceeded expectations

It is now well recognised that both the OPEC and non-OPEC producers in the DOC exhibited higher-than-expected output compliance to their pledged targets. In just the first three months of the initial six-month plan OPEC+ output compliance surpassed 90%, and since the DOC's extension in July 2017 compliance has remained constantly above 100%, supported by involuntary cuts. As shown in Figure 4, in 2017 the output conformity level of the group of non-OPEC producers participating in the Agreement averaged 94% and in 1H2018 it fell to near 80%, albeit that it counteracted deeper OPEC involuntary cuts originating primarily from Venezuela and Angola that pushed average OPEC compliance to near 160%. Overall, OPEC+ compliance at the same time averaged at 100% and 132% respectively.

What is less well recognised however is the success of the Joint OPEC/Non-OPEC Ministerial Monitoring Committee (JMMC) in monitoring the implementation of the voluntary output adjustments, as well as proactively managing the Agreement on a monthly basis. The latter is reflected by the fact that the average deviation between the JMMC OPEC+ conformity estimates and those based on IEA data, is, overall, less than 6% or 0.1 mb/d. Concessions were made however. Kazakhstan, the biggest over-producer historically, was given a free pass by the rest of the producers in order to avoid disturbing the balances within the DOC and negatively impacting the market, given the sizeable amount of involuntary cuts even within the non-OPEC group. For example, since 2H2017 Mexico has sustained involuntary output outages that on average exceeded 0.15 mb/d above its pledged target, due to steep field declines. Kazakh over-production in the same period averaged near 0.12 mb/d.

**Figure 4: Non-OPEC output cut commitments, Jan 17 – Jun 18**



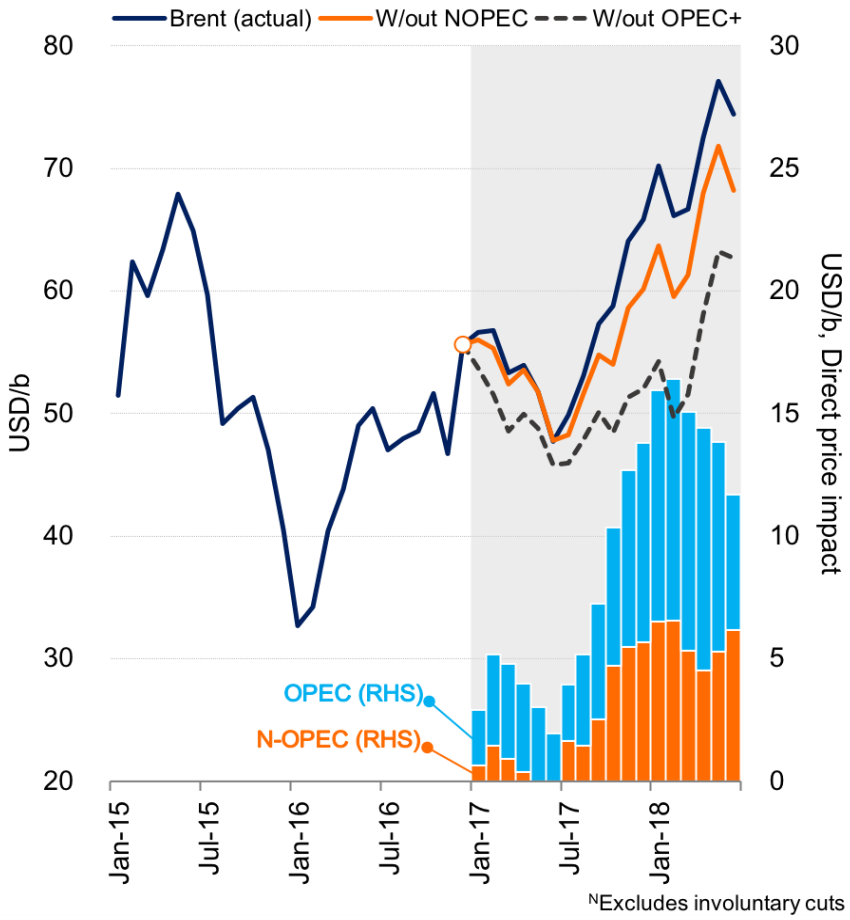

Source: IEA, OPEC, OIES.

## Fact 3: The DOC accelerated the price recovery

An important question is whether the non-OPEC producers' participation in OPEC's DOC had any actual impact on the price recovery and, if it did, by how many dollars per barrel. Figure 5 answers this question by showing the evolution of the real Brent price with (actual) and without the non-OPEC output cuts in the period January 2017 to June 2018, excluding involuntary cuts. Indeed, the DOC accelerated the oil price recovery from July 2017-onwards, as non-OPEC conformity levels started to pick up. In the absence of non-OPEC participation in the Agreement, OPEC oil producers alone would not have managed to set a price floor at $70/b in 2018, as the Brent price would have averaged at only $65/b. On an annual basis, the counterfactual Brent price in 2017 would have been $53/b compared to the actual $56/b, with the difference progressively increasing from 4Q2017-onwards. In 1H2018, the difference opens up to $6/b on average, that is $65/b compared to the actual $71/b. At its peak, non-OPEC voluntary output cuts added around $6/b to the price increase, compared to OPEC's voluntary cuts which added more than $10/b.

Another important question is what would have happened had OPEC failed to reach an output cut deal altogether. It is now well-known that Saudi Arabia was unwilling to act unilaterally to balance the market, a fundamental principle shaped by the experience of the 1980s oil price collapse. Hence, in the absence of the OPEC/NOPEC Agreement in December 2016 there is little chance that the Algiers Accord would have stood alone, or that a unilateral output cut deal from OPEC would have achieved the current implementation success. On this basis, Figure 5 shows that in the absence of an OPEC$^{+}$ output cut deal altogether, all else remaining equal, the Brent price in 2017 would have averaged close to $50/b, before increasing in 1H2018 towards the low-$60/b, due to demand pressures and as geopolitical risks began to factor in. Notably, despite strong US shale growth of 1.4 mb/d y/y as of June 2018. On average, in 1H2018 the Brent price would have been lower by as much as $15/b, at $56/b compared to the actual $71/b.

**Figure 5: Direct impact of the DOC on the Brent price, Jan 15 – Jun 18**

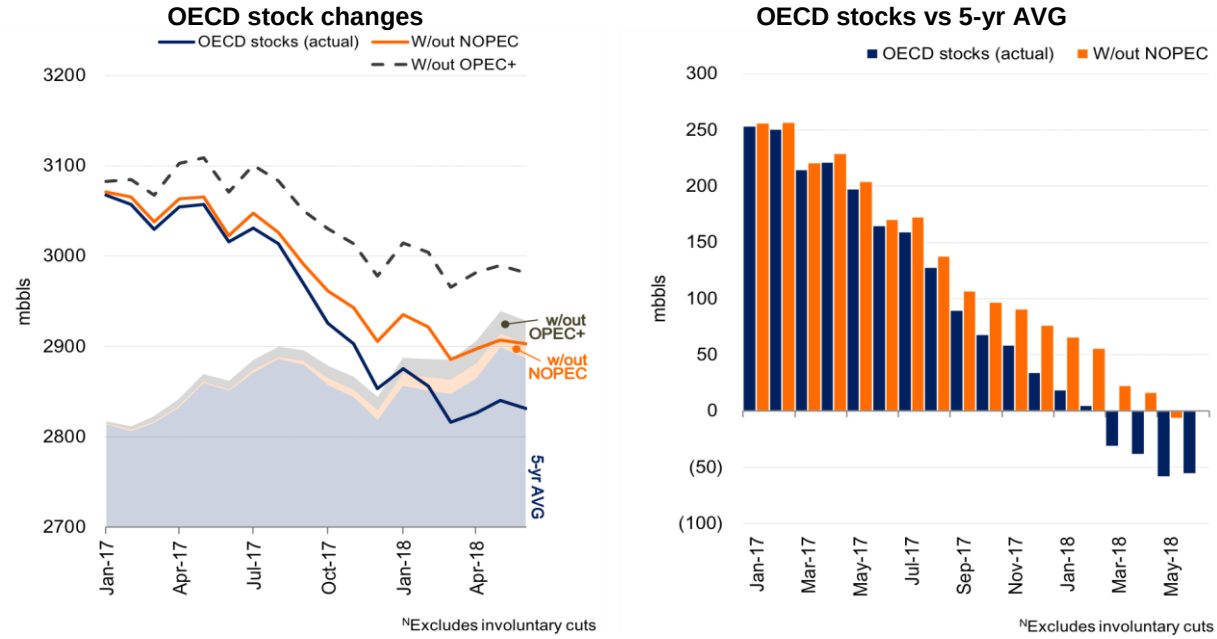



Source: OIES.

## Fact 4: The DOC also accelerated the clearing of the stocks overhang

Figure 6 complements the previous results by assessing the direct impact of the DOC on OECD stocks under the same assumptions. OECD stocks remain the most cited indicator of oil market rebalancing, and their five-year average is the de facto target used to measure the success of output cuts; albeit an imperfect one. As is shown in the figure, non-OPEC participation in the DOC accelerated market rebalancing by *at least* six months. In the absence of the non-OPEC output cuts, OECD stocks would still have declined in 2H2017 driven by global demand growth, although by June 2018 they would only have cleared near their 5-year average, compared to actual stocks that since February 2018 have fallen below the 5-year average. If no output cut deal was reached in late-2016, OECD stocks would still have been hovering around 3000 mbbls in 2018, 85 mbbls in excess of the average. Taken together, these facts suggest that not only did OPEC's DOC with non-OPEC producers have a materially important contribution to make to the market rebalancing, but also that OPEC/NOPEC cooperation successfully managed the many challenges that arise in planning, coordinating and monitoring such an ambitious Agreement; at least in the short-term.

**Figure 6: Direct impact of the DOC to OECD stocks, Jan 17 – Jun 18**

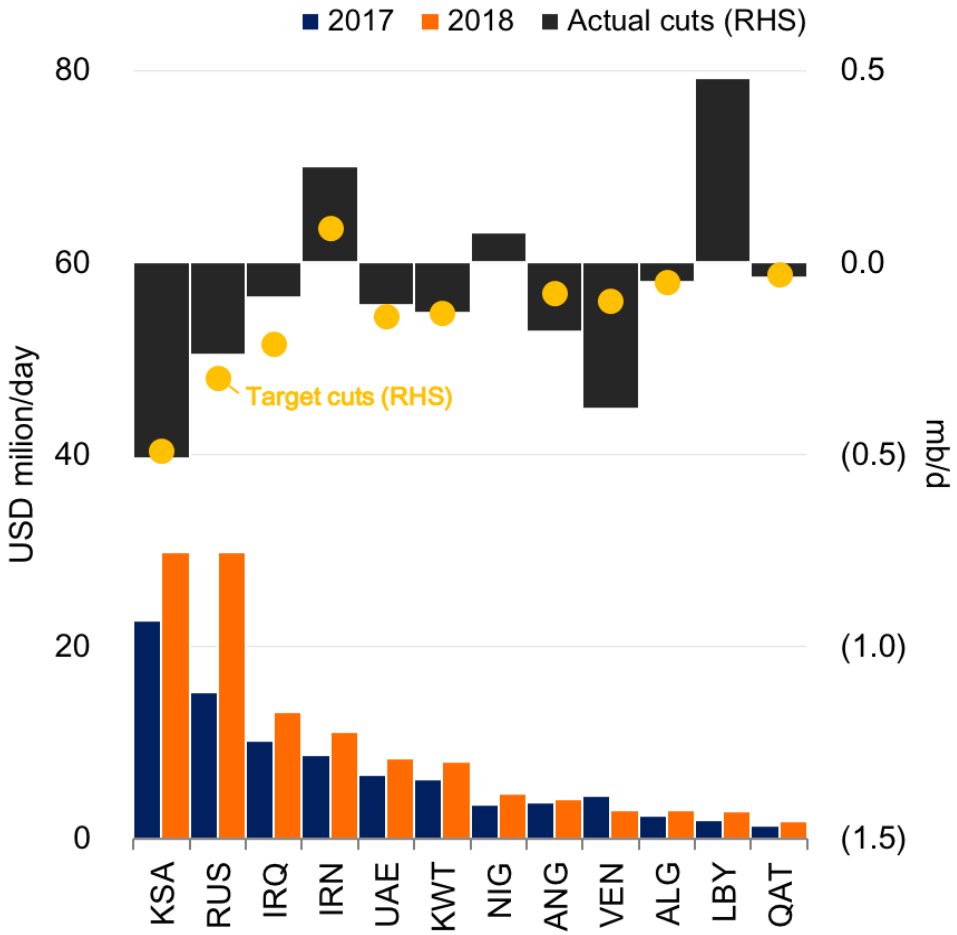



Source: IEA, OIES.

## Fact 5: The DOC's cooperative framework success hides in the details

The most important task, to begin with, for establishing a framework of cooperation amongst a large number of oil-producing countries is to deal with the producers' different revenue needs and diverse degree of financial resilience. With this in mind, it is important to understand how the DOC has dealt with this challenge so far. Figure 7 plots the gross oil revenues of oil producers generated directly by non-OPEC participation in the DOC, as compared to OPEC curbing its output unilaterally. Estimates show that all participating producers in the DOC benefited under this cooperative framework, earning more than had the non-OPEC producers not participated in the Agreement. Saudi Arabia and Russia saw the biggest rewards, earning on average an additional $26 million/day and $20 million/day throughout 2017-1H18, given that compliance averaged at 100% and 80% respectively. Iraq which has been producing above its pledged target follows third, gaining an extra $12 million/day, with Iran following closely netting close to $10 million/day. It is important to stress that overall there exists a great uniformity amongst the size of allocated targets, actual cuts and gross revenues, with the exception of Venezuela and to a lesser extent Angola. This is because both producers were battered by substantial involuntary output declines.

**Figure 7: Direct impact of the non-OPEC participation in the DOC on gross oil revenues**




Notes: Prices include the OPEC basket price and the Urals NW (Russia). Russian production growth assumptions in the absence of the output cuts, are based on projections from IEA's *Oil Medium-Term Market Report* of 2016. Source: Argus, IEA, OIES.

These estimates provide some useful insights into how managing producer-producer relations mattered for the successful implementation of the DOC. A striking example is the fair allocation of additional oil revenues deriving directly from the DOC between Saudi Arabia and Russia, the pact's de facto leaders. Clearly, fairness among leading-producers strengthens the coalition and safeguards its stated mission from externalities, as well as keeping cooperation well-targeted. Another, important example is the case of Iran. Between 2012–15 Iran lost on average about $57 million/day on gross revenues as a result of US and EU sanctions. That said, between 2017-1H18, Iran managed to earn about $53 million/day on average, of which $20 million/day can be attributed directly to non-OPEC participation in the DOC as compared to $33 million/day that Iran would have pocketed if only OPEC had cut its output.

### *Will oil policy and cooperation continue to matter?*

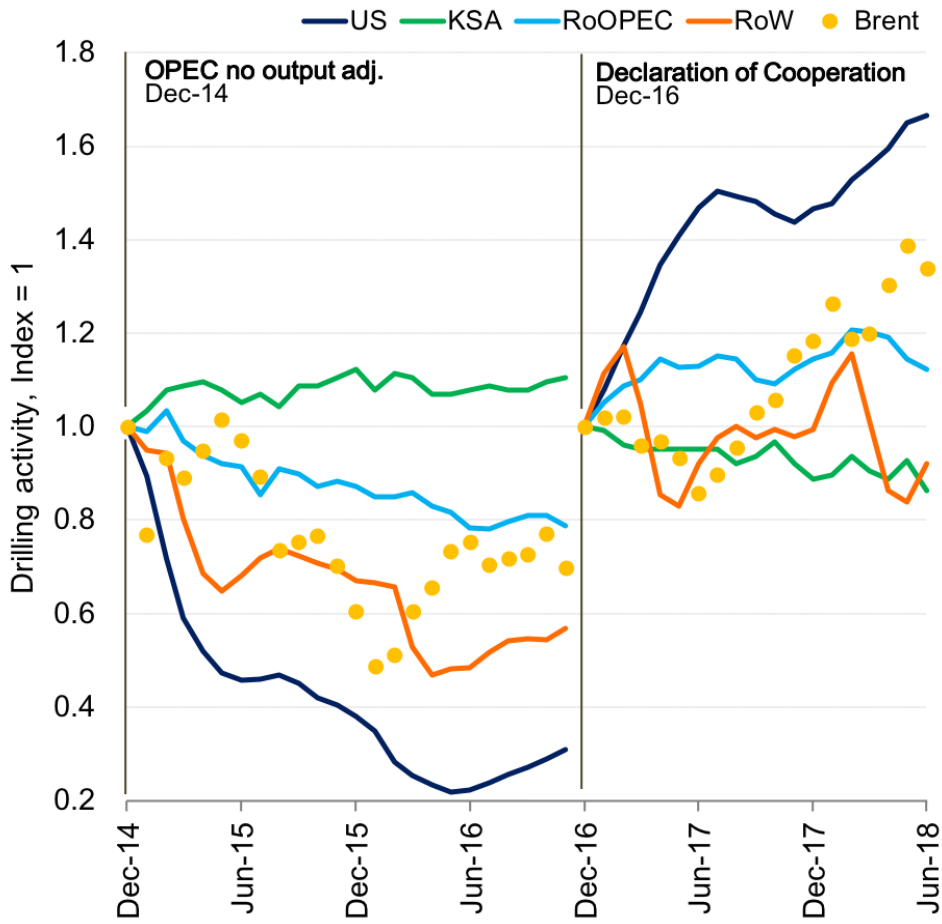
As the DOC approaches its end the OPEC/NOPEC producers are shifting the goalposts towards developing a framework for long-term cooperation. In a world where the prospects for oil demand and the speed of energy transition are highly uncertain, the immediate benefits from pursuing cooperation are clearly more visible and certain than the alternative of pursuing competition. Faced with the possibility of stranded assets, a common belief is that it is in the best interests of oil producers, and even rational, to monetise their reserves as quickly as possible to squeeze out high-cost producers. This view however is overly simple and ignores the significant challenges that a shift to a competitive market poses for major oil producing countries. If most low-cost producers adopt a similar strategy and increase supplies in the face of expected slowing demand growth, this will result in diminishing oil

prices and oil revenues derailing any attempts at economic diversification. In turn, a low oil price environment will adversely impact upstream investments and low-cost oil producers will find it difficult to raise or even sustain their production capacity. Thus, even as the market inevitably shifts to a more competitive environment, albeit slowly, oil policy and managing producer-producer relations will continue to matter.

But as the OPEC/NOPEC producers in the DOC pursue a long-term cooperative strategy, the challenges faced are immense and the existing framework is not well enough developed to deal with these issues, especially in a more competitive market:

- To start with, although monitoring compliance within the DOC cooperative framework has worked remarkably well in the short-term, this will get harder as time passes and as more countries join the pact.
- The scope of the long-term cooperation must go beyond output to include long-term investment plans, as 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 non-OPEC alike having ambitious plans to increase productive capacity, coordination on investment will be extremely difficult.

**Figure 8: Worldwide investment activity in upstream oil**




Source: BHGE, OIES.

- Stabilising expectations around a higher oil price is essential for upstream investments, for reducing producers' exposure to long-term risks and reversing the increasing flow of investments from short-cycle projects to long-cycle and more capital-intensive projects. An issue the DOC has so far failed to address (see Figure 8).

- But, keeping prices high comes at the cost of inducing strong supply and demand responses, and producers should be as concerned and proactive in responding when prices are too high, as they are when they are low.
- And above all, long-term cooperation requires unprecedented levels of leadership in order to maintain the coalition among producers during good and, most importantly, bad times. Despite its current success in rebalancing the market, the DOC has largely been supported by favourable demand conditions amid deep involuntary cuts that helped accelerate the balancing act and ease the implementation procedure. The challenge of unfavourable market conditions on the existing cooperative framework will not be trivial. (see Fact 1).

All these issues suggest that maintaining the OPEC/NOPEC cooperation in the long-term will not be easy and while the producers had a good track record under the DOC and the incentive to pursue long-term cooperation, the cooperation between producers has to take a different shape to that which has existed until now.