Securing America's Future Energy

Issue Brief

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Saudi Arabia: The Power Behind OPEC

Summary

- Saudi Arabia has long been the driving force behind OPEC's decision-making. Whenever OPEC action has shaken the crude oil market, such as in the 1973-74 embargo, the price spike of 1979-80, the unexpected flooding of the market that has taken place since 2014, or the ongoing talk of a coordinated production cut between OPEC and non-OPEC producers, Saudi Arabian priorities have undergirded OPEC's policy.

- As the world's largest source of spare production capacity and massive oil reserves and some of the world's lowest production costs, Saudi Arabia can—and does—adjust its production levels to suit desired political or economic outcomes.

- Saudi Arabia's influence over OPEC policies harms stakeholders in the United States. This influence, coupled with uncertainty over the long-term stability and security of global oil supplies—both of which are necessary to maintaining a well-supplied oil market—cause great harm to the U.S. economy and make the efforts to reduce the U.S. transportation sector's dependence on oil ever more urgent.

- Saudi Arabia's strategy going forward could include changing its production levels to induce boom-bust cycles in the global oil market, or returning to an extended period of OPEC-coordinated action to artificially elevate prices, something they have done several times before. In the United States, these pricing practices would constitute industry collusion and would be subject to criminal or civil prosecution under existing U.S. statute.

- However, with its low production costs and massive currency reserves, Saudi Arabia has occasionally found itself at odds with poorer members of OPEC. Countries like Venezuela, Nigeria, Algeria and Iran have frequently protested over the past two years about low prices that have followed Saudi Arabia's insistence on maintaining high production levels. While the promise of a coordinated production cut may have temporarily mitigated this disagreement, complications raised by this divergence of interests could threaten the cohesion of OPEC as an effective body well into the future.

- While Saudi Arabia's high-production strategy has succeeded in regaining market share for the nation (and OPEC more generally), it has contributed to a dire financial trajectory for the nation. Total currency reserves have fallen by $180 billion since 2014, and despite a surplus of 12 percent as recently as 2012, budget deficits are projected by the IMF to continue to reach

or exceed nine percent for each year through 2021.

- To counter this economic trend driven by its dependence on oil revenue, Saudi Arabia is embarking on a set of unprecedented policies by Deputy Crown Prince Mohammed bin Salman that could have unexpected domestic consequences. These include tapping international bond markets, slashing government salaries and consumer subsidies, seeking to diversify the economy and build the private sector, and selling a stake in the state-owned oil giant Saudi Aramco, expected to take place in 2018 and be the largest IPO in history.

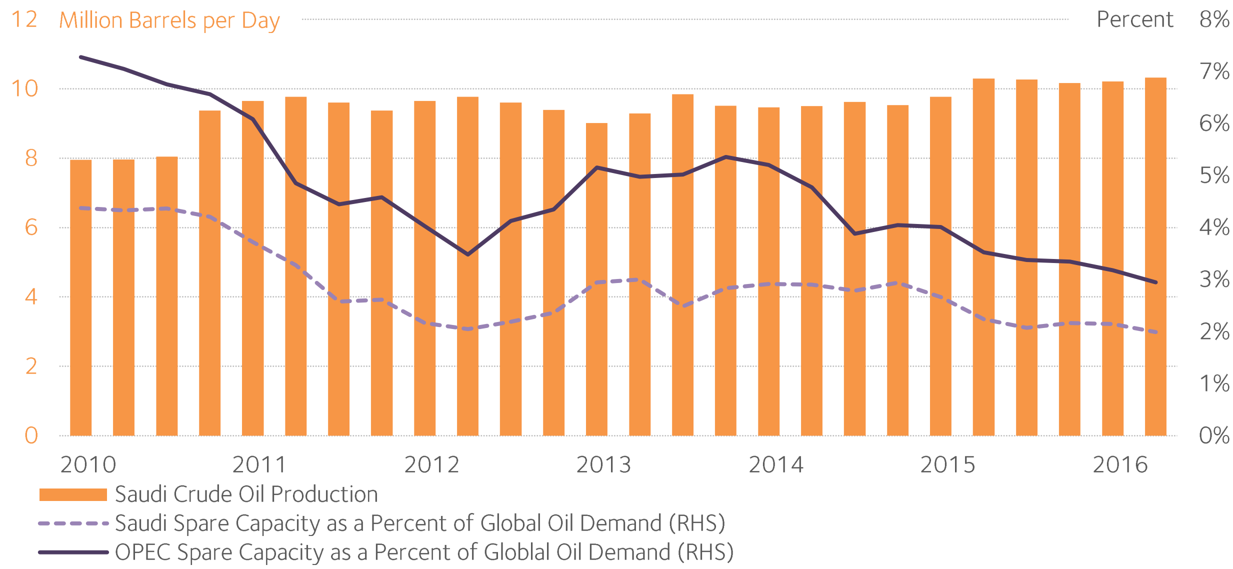
- However, domestic cuts risk stoking domestic discontent and a publicly traded Aramco could present further legal complications for Saudi Arabia's policy of manipulating its output levels.

- While Saudi Arabia has long been a close ally of the United States—in large part due to U.S. acknowledgement of the central role Riyadh plays in the oil market—concerns over its human rights record, its support for extremist Islam and its war in Yemen have led to increasing and bipartisan skepticism about commitments to provide U.S. military support for Saudi Arabia. A breakdown in ties could prompt Saudi economic retaliation through the oil market or other means.

Background

On September 28, 2016, OPEC made an unexpected announcement during the bloc's extraordinary meeting in Algiers, fulfilling Saudi Arabia's earlier optimism about reaching an agreement to freeze production and allow demand to meet supply. After two years of unfettered production led by Saudi Arabia, which led many analysts to question the role of OPEC as the group took the unprecedented step of abandoning even a nominal collective production target at its December 2015 meeting, the cartel surprised the world by announcing that it would set a target of 32.5-33.0 million barrels per day (mbd). Further details will likely be announced at the organization's meeting in Vienna on November 30, 2016. The development has attracted the attention of a global oil market transformed by the state of oversupply entrenched by Saudi Arabia's even more surprising refusal to cut production at OPEC's November 2014 meeting amid falling oil prices. That decision heavily impacted the markets, sending oil prices plummeting to less than $30 per barrel (bbl) by January 2015 from a high of $115 per barrel just six months before.

FIGURE 1 • SAUDI SPARE CAPACITY AS A PERCENT OF WORLD LIQUID FUELS CONSUMPTION



Source: SAFE analyis based on data from IEA

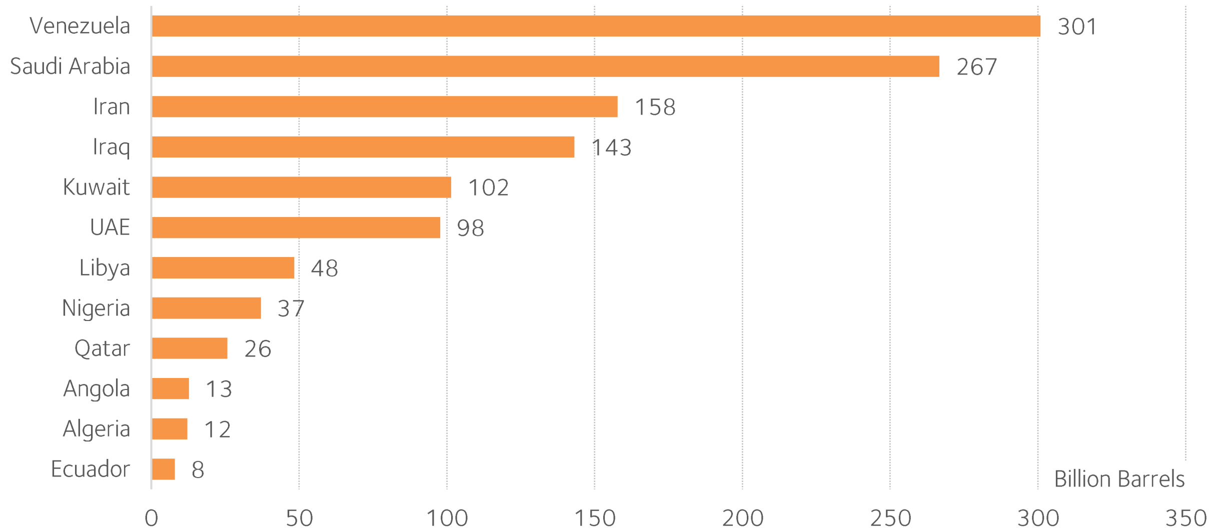
Saudi Arabia has long been the most influential power of OPEC, the nation truly responsible for the bloc's policy thanks to its dominant market share, its possession of most of the organization's spare capacity (Figure 1) and its massive, easily accessible, low cost reserves (Figure 2). Economic studies have found that Saudi Arabia's market power, along with its ability to leverage its geopolitical relationships, make it OPEC's dominant member, not only convening the discussion of the cartel's production policy but using its immense market power to pressure other members to set production levels that influence prices and align with its strategic goals.[1] When it seeks to punish other nations seen as overproducing within the bloc, it can increase its production, as it did in 1986 after previously taking responsibility for cuts in an effort to support prices while other nations exceeded their quotas. As the same paper concluded:

> *Saudi Arabia meets all of the characteristics of a dominant producer by having relatively large market share, excess capacity, flexible behavior, the ability to move its price by increasing or decreasing production, and operating on the elastic part of its demand curve. No other OPEC member has similar behavior.*[2]

Saudi Arabia has been at the forefront of OPEC's global sway since the organization's formation at a 1960 meeting held in Baghdad with Venezuela, Iran, Iraq, and Kuwait. Saudi Arabia was a driving force in the creation of OPEC, alongside Venezuela, and was seen as making a variety of influential contributions (such as convincing Iran to join the Baghdad meeting). At the heart of the issue was a desire to respond to price cuts that many oil-producing nations felt had been out of their control thanks to the influence of the international oil companies known collectively as the Seven Sisters. Thus, with heavy involvement from the first Saudi Oil Minister, Abdullah Tariki, the nations set up the core of what one delegate at the Baghdad meeting called "a cartel to confront the cartel."[3]

[1] Alhajji, A.F., and Huettner, D. "OPEC and Other Commodity Cartels." Energy Policy 28 (2000): 1151-1164.
[2] Id.
[3] MEES, "The First OPEC Meeting Held in Baghdad," September 16, 1960.

FIGURE 2 • TOTAL PROVED RESERVES BY OPEC MEMBER COUNTRY, 2015



Source: BP, plc., Statistical Review of World Energy 2016

The creation of OPEC was only one element of a gradual trend of Riyadh asserting ever-greater control over its own oil industry and, in turn, the global market. The beginnings of Saudi Arabia's oil industry were highly dependent on the outside world, as what would eventually become known as Saudi Aramco began as a consortium of American oil companies producing oil via a concession from the young Kingdom. In 1950, the government of King Abdul Aziz successfully negotiated a fifty-fifty split of revenues between Aramco and the government. Saudi Arabia went on to pay American companies for their shares of Aramco, nationalizing the company completely by the early 1980s.

The first truly notable instance of Saudi Arabia asserting its authority on the global market via OPEC was the embargo that began in response to U.S. involvement in the 1973 Arab-Israeli War.[4] Its supply embargo involved OPEC cutting production and Saudi Arabia leading other Arab states, both inside and outside the bloc, in stopping oil shipments to the United States and several other countries. At its height, the embargo caused a shortfall of 4.3 mbd, or 8 percent of total global oil supply.[5] This interruption resulted in global nominal oil prices tripling between 1973 and 1974, from $4/bbl to more than $12/bbl, prompting a global recession that was particularly damaging to the United States.[6] While OPEC as a whole is often seen as being responsible for the effectiveness of the embargo, Saudi Arabia was responsible for about 60 percent of OPEC's output cuts undertaken in 1973. The resulting jumps in price were set off by Saudi-led cuts over the course of the embargo.[7]

Saudi Arabia has shown itself to be the dominant price-setter within OPEC even at times when other factors have drawn the attention of market observers elsewhere. While the jump in the price of oil from $12/bbl to $32/bbl in 1979-1980 is remembered for occurring against the backdrop of the Iranian Revolution, Saudi behavior arguably played a bigger role in prompting the price spike. In January 1979,

[4] Department of State, Office of the Historian, Milestones: 1969-1976, "Oil Embargo, 1973-1974."
[5] IEA, *Energy Supply Security 2014*, at 14.
[6] SAFE analysis based on data from EIA.
[7] Morris Adelman, *The Genie Out of the Bottle*, MIT Press, 1995, at 111.

Saudi Arabia cut production from 10.4 mbd to 8.0 mbd in the span of one day, prompting an increase from less than $20/bbl to more than $31/bbl in the span of less than one month.[8]

Saudi Arabia has repeatedly used this market power to help elevate prices for its fellow OPEC members, often absorbing the costs of lost production. By sacrificing market share—which dropped from more than 47 percent in 1979 to slightly less than 30 percent in 1985—OPEC was able to keep the price of oil in real dollars higher than it had ever previously been in post-war history for seven consecutive years.[9] However, this burden fell disproportionately on Saudi Arabia, as poor discipline within the group meant that other producers (with the exception of warring Iran and Iraq) exceeded their production quotas and put downward pressure on prices. Between 1980 and 1985, Saudi Arabia reduced production from more than 10 mbd to less than 4 mbd in an effort to halt collapsing oil prices, which had fallen from roughly $100/bbl to $60/bbl over the period (in 2015 U.S. Dollars).[10] By the end of 1985, Saudi Arabia became unwilling to continue losing market share to other OPEC members who continued to exceed their quotas. Between late 1985 and 1986, Saudi Arabia changed its strategy, increasing output by more than 2 mbd and sending global oil prices plummeting to as low as $23/bbl (2015 U.S. Dollars).[11] This strategy showed Saudi Arabia's willingness to use high output levels to "punish" countries deemed to be overproducing, be they within OPEC as in the 1980s or, more recently, outside the bloc.

In the United States, these pricing practices would constitute industry collusion, and their implementation would be subject to criminal or civil prosecution under existing U.S. statute. OPEC's founding objective—to "coordinat[e] and unif[y] petroleum policies of member countries"—would represent the illegal suppression of trade, and could be classified as an obstacle to "full and free competition," potentially meriting investigation by the U.S. Department of Justice or the Federal Trade Commission, or both.[12] Instead, OPEC's status as a confederation of member nations affords it the legal immunities provided to foreign governments. Furthermore, attempts to arbitrate against these collusive activities are relegated to the political arena, leaving the execution of U.S. foreign policy to the Congress and President of the United States, and providing U.S. oil producers and consumers with little legal recourse to adjudicate against unfree and unfair trade practices.[13] Without a legal remedy, private companies remain vulnerable to OPEC's disproportionate influence over the market, which is largely driven by Saudi Arabia's production policies.

Seen through the lens of history, the recent behavior of OPEC to produce at maximum levels directly aligns with historical precedent. While today's global oil market has new players and new dynamics, it remains a reflection of the old adage: the more things change, the more things stay the same.

What Drives Saudi Decision-Making?

Saudi Arabia is often accused of basing its production policy on geopolitical concerns. Most recently, some political analysts searching for meaning in Riyadh's unexpected decision to let oil prices plummet

[8] Morris Adelman, "OPEC as a Cartel," in Griffin and Tecce, eds., *OPEC Behavior and World Oil Prices*, London: George Allen & Unwin, 1982; cited in Dermot Gately, "A Retrospective: OPEC and the World Oil Market," *Journal of Economic Literature* 22:3, September 1984.
[9] David L. Greene, "Measuring Energy Security: Can the United States Achieve Oil Independence?" *Energy Policy* 38 (2010), 1614-21.
[10] BP, plc., Statistical Review of World Energy 2014; and EIA, Real Prices Viewer.
[11] Id.
[12] OPEC, Statute, 2012, at 1; See, e.g., Robert Bork, *Legislative Intent and the Policy of the Sherman Act,* The Journal of Law and Economics, 1966.
[13] See, e.g., *Spectrum Stores et al. v. Citgo Petroleum Corp*, 62 F.3d 938, 943 (5th Cir. 2011).

in the second half of 2014 suggested that the decision-making was driven less by economics than by political rivalries. Dealing a blow to the sanctions-ravaged economy of Iran, Saudi Arabia's regional archrival, or to Russia, the staunch ally of Bashar al-Assad's government in Syria, were cited as two goals.

This is a long-standing theory used to explain Saudi behavior. For example, analysts viewed the price increase of 1979 to 1980 as being facilitated by Saudi Arabia to maximize its own stability at a time of regional uncertainty. With many Arab states pressuring Riyadh to distance itself from the Camp David peace process, and threats of terrorism made against Saudi oil installations if it did not do so, its supply cut was seen by some as an attempt to avoid depriving its agitated neighbors of high rents or market share, thereby steering clear of any potential dispute with the newly assertive Iraq of Saddam Hussein or the new revolutionary government in Iran.[14]

Since it declined to cut oil production at the November 2014 OPEC meeting, Saudi Arabia's justification for its behavior has been economic in nature, at least publicly. Then Oil Minister Ali al-Naimi was adamant that the production policy was not designed to attack any particular nation, be it the United States (in an effort to halt the growth of unconventional shale oil production) or oil-exporting political adversaries like Iran or Russia. "There is no effort against anyone in the international oil market, there are no conspiracies against other countries," he told CNN in the aftermath of the meeting.[15] He claimed that Riyadh welcomes the contribution of U.S. unconventional oil to the market, but has implied that this new capacity must be adjustable as well, and that the receding investment in U.S. production that has followed the decline in the price of oil is merely such an adjustment, albeit a market-induced one. He noted that "during periods when supply growth outpaces demand, the lowest-cost producers will inevitably have an edge over higher cost marginal producers."[16]

The Effectiveness of the Saudi Strategy

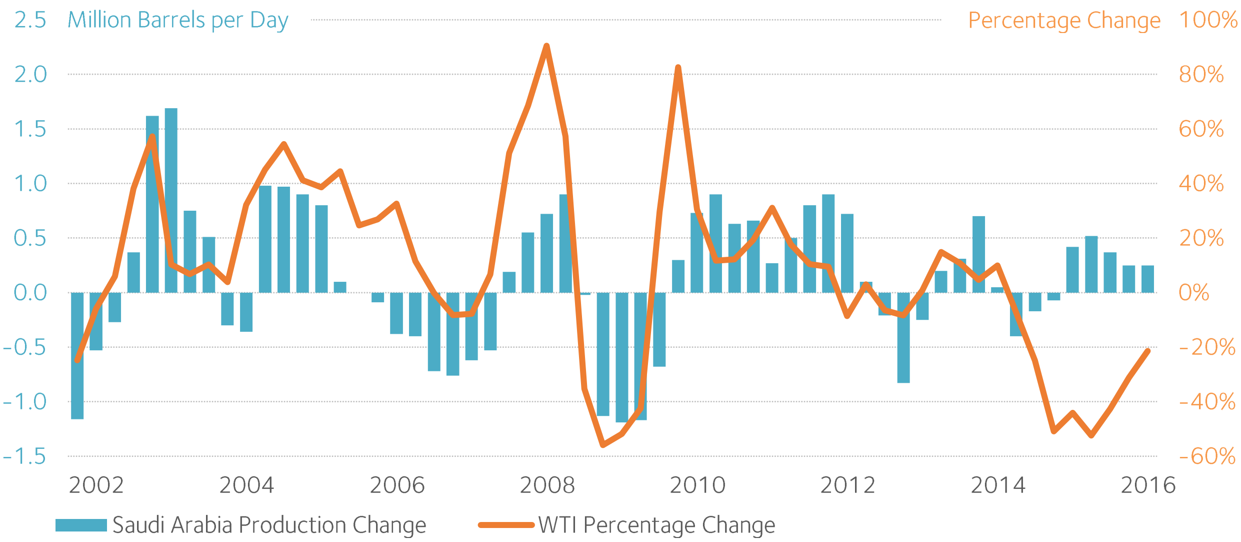
Although U.S. production levels initially proved resilient, in part due to the lag time between production investment decisions being made and the completion of planned projects, higher-cost shale oil production in the United States has declined significantly in absolute terms. The wide-ranging economic damage to the U.S. energy industry is even more evident when measured against expectation. After growing from 5 mbd in 2008 to 8.76 mbd in 2014[17], it was expected that with WTI oil prices above $100/bbl in mid-2014[18], this growth would continue. For example, in its 2014 Annual Energy Outlook, the EIA projected that U.S. crude production in the onshore region of the lower-48 states (a good proxy for shale production) would increase by 1.02 mbd between 2014 and 2016.[19] Today, EIA estimates that lower-48 production will actually have declined by 0.20 mbd over that period, a swing of -1.22 mbd in actuals compared to expectations.[20]

Meanwhile, nations where demand had been stable or declining have been spurred by the price collapse to reverse these trends. In the United States, oil demand, approximately 71 percent[21] of which is

[14] Theodore Moran, "Modeling OPEC Behavior: Economic and Political Alternatives," in James Griffin and David Teece, eds., *OPEC Behavior and World Oil Prices*, London: George Allen & Unwin, 1982.
[15] John Defterios, "Saudi Arabia: We'll Never Cut Oil Production," CNN Money, December 22, 2015.
[16] Ali al-Naimi, Address at the German-Arab Friendship Association in Berlin, March 4, 2015.
[17] EIA, U.S. Field Production of Crude Oil.
[18] EIA, "Crude Oil Prices Down Sharply in Fourth Quarter of 2014," January 6, 2015.
[19] EIA, *Annual Energy Outlook 2014*, Table: Oil and Gas Supply (Reference Case).
[20] EIA, *Short-Term Energy Outlook*, Table 4a: U.S. Petroleum and Other Liquids Supply, Consumption, and Inventories. September 7, 2016.
[21] EIA, *Monthly Energy Review*, September 2016, Tables 3.7 a,b,c, Petroleum Consumption by Sector

attributable to the transportation sector, rose from 13.8 mbd in June 2014 to 14.7 mbd in June 2016.[22] Once considered an early indicator of peak demand for travel and fuel consumption in America, U.S. vehicle miles traveled (VMT) increased at its fastest pace in at least 45 years in 2015, and now stands at its highest level in history. Even on a per capita basis, VMT in 2015 surged to levels last seen in 2007, prior to the financial crisis. Meanwhile, U.S. gasoline demand averaged 9.2 mbd in 2015, very near its all-time high.[23] Such changes in transportation habits last far longer than the era of low prices: the market share of SUVs and light trucks increased from 53.5 percent to 60.4 percent of all vehicles sold between September 2014 and September 2016[24], meaning that a less fuel-efficient vehicle fleet will be traveling U.S. roads for years to come.

FIGURE 3 • YEAR-OVER-YEAR CHANGE IN SAUDI CRUDE OIL PRODUCTION



Source: EIA

In refusing to cut production between 2014 and—if it holds—the post-Algiers shift, Saudi Arabia has faced the frequent ire of its fellow OPEC members seeking a coordinated supply cut to alleviate the economic damage of low oil prices. These have generally been members suffering greater financial distress and thus with higher fiscal breakeven prices needed to balance their budgets (and often also with lower currency reserves to plug deficits as needed). This phenomenon came to a head at the November 2014 OPEC meeting, when producers including Venezuela, Algeria, and Iran had been pushing for output cuts—totaling as much as 2 mbd in the case of Venezuela and Algeria—but were blocked by others led by Saudi Arabia. Saudi Oil Minister al-Naimi said upon the meeting's conclusion, "It was a great decision."[25]

By December 2015, the clarity of Saudi Arabia's resolve to continue its strategy was confirmed as it refused calls for compromise by even the group's deeply indebted nations like Venezuela, which wanted a 5 percent output cut across the bloc. Saudi Arabia's control over the bloc resulted in the

[22] Id.
[23] EIA, *Petroleum Supply Monthly*.
[24] SAFE analysis based on data from BEA.
[25] Alex Lawler, David Sheppard, and Rania El Gamal, *Reuters,* "Saudis Block OPEC Output Cut, Sending Oil Price Plunging," November 27, 2014.

unprecedented outcome of OPEC abandoning even its nominal group production ceiling of 30 mbd. This prompted many observers to argue that Saudi Arabia's desire to maintain production share had effectively killed off OPEC as a cohesive organization. Anger at Saudi policy continued to prompt other members' disillusionment about the effectiveness of OPEC, with figures like former Algerian Prime Minister Ahmed Benbitour saying that the focus on market share meant "Algeria is getting no benefit from this organization."[26] However, amid a recognition that the market remained oversupplied and that low prices were unsustainable not only for poorer OPEC members but also for the richer Gulf monarchies, Saudi Arabia has increasingly spoken of freezing or cutting production throughout 2016, culminating in the Algiers announcement. Riyadh will hope the positive rhetoric surrounding the September 28 meeting, as well as its promise of an output cut, will alleviate this rancor and keep its fellow exporters from rebelling against its de facto leadership of the organization.

Where Saudi Arabia Could be Leading OPEC

As discussed in the June 2016 SAFE Issue Brief *The OPEC (Saudi) Strategy*, Saudi Arabia's aim since the summer of 2014 has been to avoid ceding market share while making sure that any production cuts necessary to rebalance the market no longer be its sole responsibility. The statements by Saudi officials since 2014 arguing for its maintenance of elevated production levels are designed to have non-OPEC nations join in the production cuts to bring needed supply in line with demand. This underlying principle will likely be the base of any future oil policy course taken by Riyadh. However, other nations are likely to object: most production cuts absorbed by non-OPEC nations as a result of Saudi production policy will be involuntary, and Saudi grandstanding on behalf of OPEC has been deeply opposed by many members of the organization because of the low prices the accompanying policy has engendered. These factors mean that strife between members of OPEC and upheaval both within and outside the bloc are likely to aggravate the economic implications of wherever Saudi Arabia decides to lead the cartel in the coming years.

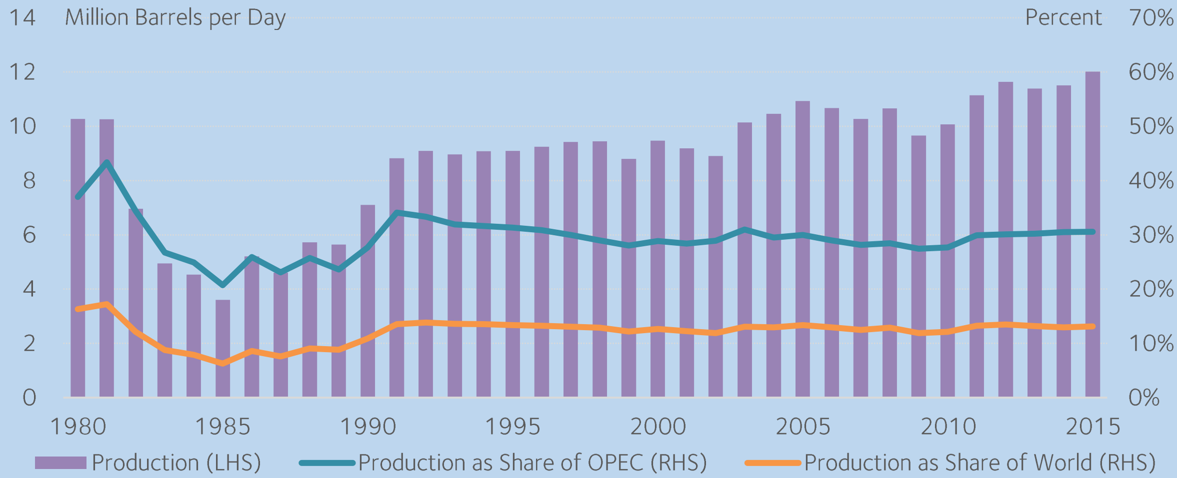
As Saudi Arabia maintained its high-output strategy despite the severe fiscal pain it caused for itself and other OPEC members, the anticipated effects on global supply are coming to fruition. In addition to the downturn in U.S. shale production, seen as the primary immediate target, other high-cost production throughout the world has been deeply affected. Per the International Energy Agency, production in North and South America fell by 0.4 mbd between Q1 and Q3 2016.[27] Going into Q4 2016, China is producing 0.3 mbd less than last year.[28] Saudi market share, which bottomed out at 10.3 percent of world supply in December 2014, has since rebounded to 11 percent by Q3 2016, and OPEC's market share has risen from 40.1 percent to 41.2 percent over the same period.[29] Weaker than anticipated global demand growth, however, has also slowed market rebalancing and any rebound in prices.

[26] Maher Chmaytelli, "OPEC's Family Feud," *Bloomberg Businessweek,* September 24, 2015.
[27] Summer Said, "IEA: Crude Production to Fall Behind Demand," *The Wall Street Journal,* August 11, 2016.
[28] IEA, *Oil Market Report,* August 2016, at 26.
[29] SAFE analysis based on data from EIA.

Saudi Arabia's Oil Trends

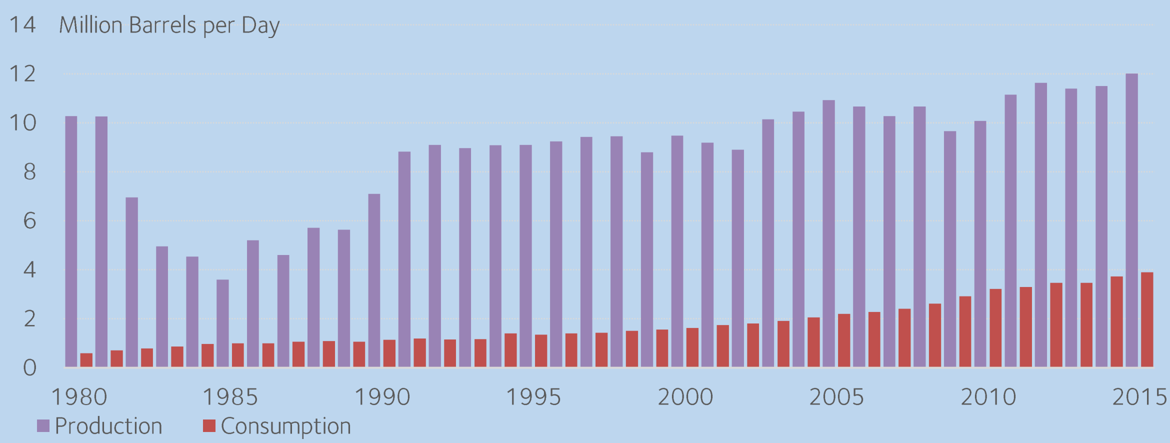
Saudi Arabia's oil production has continued to place it among the global leaders; including natural gas liquids, it reached record high production levels of 12.0 mbd in 2015, placing it second only to the United States.[30] However, growth in oil consumption has been far more rapid, reaching 3.9 mbd last year. This is more than double consumption levels from just 12 years prior in 2003, while production only grew 18.4 percent over the same period. The impact has been to decrease the proportion of Saudi oil that can be sold abroad, eating into the nation's potential revenue from its main industry. High levels of energy subsidies, including for transportation fuels and for electricity, have meant that much of the consumption growth has been economically inefficient. Further, surging electricity demand in the hot Saudi summer months is met by nearly 1 mbd of crude oil being burned directly in power plants, another likely target for reform if Saudi Arabia is to rein in its skyrocketing oil use.

FIGURE 4 • SAUDI ARABIA OIL PRODUCTION



Source: BP, p.l.c.

FIGURE 5 • SAUDI ARABIA OIL CONSUMPTION AND PRODUCTION



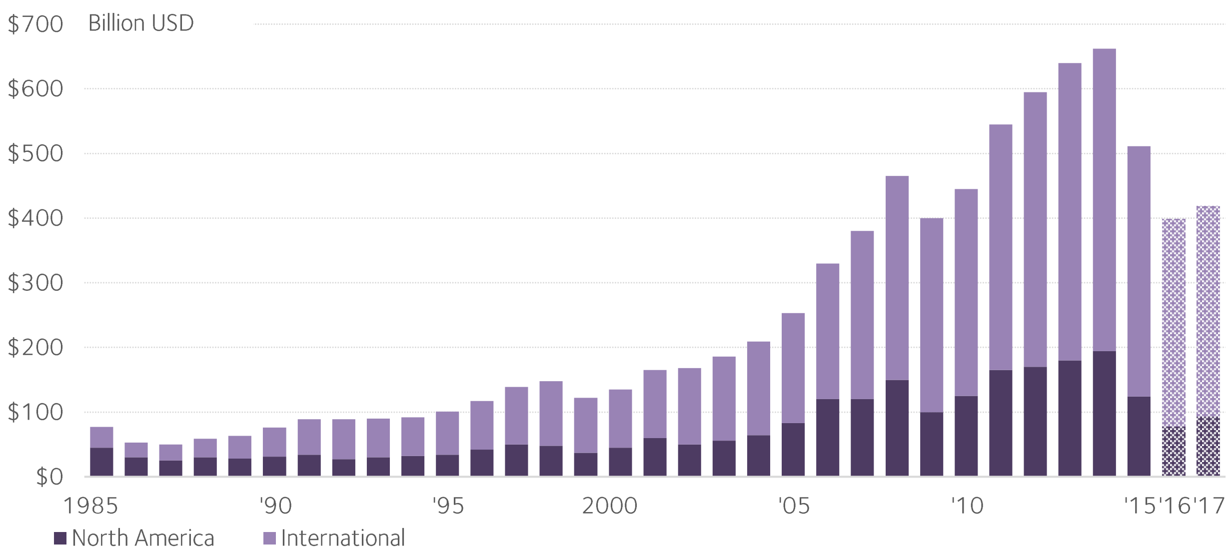
Source: BP, p.l.c.

[30] BP, plc., Statistical Review of World Energy 2016.

As a result, Saudi Arabia refused to unilaterally cut production and waited two years to accept calls for an overall OPEC output cut—a cut that, if observed, may only be as minor as dropping overall bloc production from 33.2 mbd to 33.0 mbd.[31] Essentially, to reap the full benefits of its strategy, Riyadh must wait until a combination of non-OPEC higher-cost production coming offline and demand growth (aided by lower prices) results in higher and more stable prices. Doing so with the help of coordinated production manipulation with other OPEC states' national oil companies is behavior that not only is difficult for U.S. producers to counteract, but is action that would be explicitly illegal for U.S. companies.

Lasting success for the Saudi strategy would require the global decline in capital expenditure to manifest itself in an inability of non-OPEC supply to keep up with demand growth, a process that is already being witnessed. For the second straight year, global exploration and production spending by oil companies has decreased drastically, with global investment falling an estimated 22 percent this year after a 26 percent decrease in 2015, according to a survey of more than 200 companies by Barclays (See Figure 6).[32] Relatedly, the EIA projects that non-OPEC supply will fall by 0.7 mbd this year but increase by 0.1 mbd next year.[33] Insufficient investment now and in the immediate future will hobble the industry's ability to rebound quickly enough when demand surpasses supply. The IEA projects that after drawing essentially level to supply in 2017, demand will exceed supply by 0.4 mbd in 2018, a gap that will grow to 1.1 mbd by 2021.[34]

FIGURE 6 • GLOBAL UPSTREAM CAPITAL SPENDING, 1985-PRESENT



Source: Barclays Global Survey

While much U.S. shale oil production lies in the middle of the cost curve and requires less investment lead time than other more costly non-OPEC reserves, its rebound in the wake of the higher prices is

[31] Societe Generale, "Impact of OPEC's Production Cuts Decision," October 19, 2016.
[32] SAFE analysis based on data from Barclays Global Survey; See, e.g., Oil and Gas Journal, "Barclays: Global E&P Spending to Trend Up 5% in 2017," September 7, 2016.
[33] SAFE analysis based on data from EIA.
[34] Id.

projected to insufficient to offset slowed growth elsewhere. U.S. shale oil is projected to fall by nearly 0.6 mbd this year from record highs of 4.3 mbd last year (which accounted for nearly half of the global non-OPEC supply growth), and will not reverse its decline until 2018 or return to 2015 levels until 2020.[35]

Thus, with the non-OPEC production response limited, reversing market conditions are set to allow not only for a return to higher prices, but quite likely continued price volatility. While the surprise announcement in Algiers has generated headlines, the fate of the market will depend on what Saudi Arabia does not only now but also well beyond the November 30 OPEC meeting.

Scenario 1: Cyclical Production Cuts and Heightened Volatility

If OPEC's newfound interest in cohesion and embrace of active market management continues for the rest of the year and into next year, it is reasonable to expect oil prices will rise significantly, particularly as the effects of forestalled investment from 2015 and 2016 become more apparent in non-OPEC supply levels. To date, the four planks of Saudi Arabia's strategy appear to be setting the nation up for its desired market outcomes. As mentioned in *The OPEC (Saudi) Strategy*, these planks are:

> *(1) recapture short-term market share from U.S. shale and other responsive sources of global supply; (2) undermine investment in capital intensive long-term non-OPEC oil supplies such as global deepwater resources and Canadian oil sands; (3) stimulate short-term oil demand through low prices; and (4) undercut global policy to reduce oil consumption, including fuel economy standards, as well as competition to oil, such as electricity and natural gas.*[36]

While there is an increasing sense that Saudi Arabia's decision to lead the production agreement struck in Algiers was likely because the four planks are being successfully implemented, this leaves the question of how to sustain the progress on all four goals now that production limits will be in effect. As prices rise in line with Saudi wishes due to a re-tightened market spurred by investment cuts and OPEC discipline, we would expect to see a return of investment in the United States and elsewhere. While there will be significant lag time before renewed investment in long-term non-OPEC supply bears fruit on the global market, more responsive resources like U.S. shale can return quickly and eat into the market share that Saudi Arabia has fought so hard to defend. In addition, higher oil prices would counter the ongoing trend of increased oil demand and slackened efforts to increase efficiency and foster competition from other fuels.

Thus, we could see Saudi Arabia and its allies within OPEC reap the benefits of higher oil prices for a period of time, only to eventually increase their production levels once again. Given the pain caused to producers of higher-cost crude in the past two years, any unexpected increase in Saudi Arabia's production and the accompanying price increase would lead cautious investors to withdraw from non-OPEC production again. This way, through boom-bust cycles in which production policy drives the price of oil up and down yet keeps strong investment responses from less responsive higher-cost producers at bay, Saudi Arabia could conceivably use its immense market power to maintain both higher oil prices and market share. Given sufficient disruption of non-OPEC investment and sufficiently high prices, this could garner increased support from other OPEC members and greater cohesion within the bloc going forward. However, this approach would likely mean high price volatility, with upheaval for unprepared producers and consumers alike.

[35] Id.
[36] SAFE, "The OPEC (Saudi) Strategy," June 1, 2016.

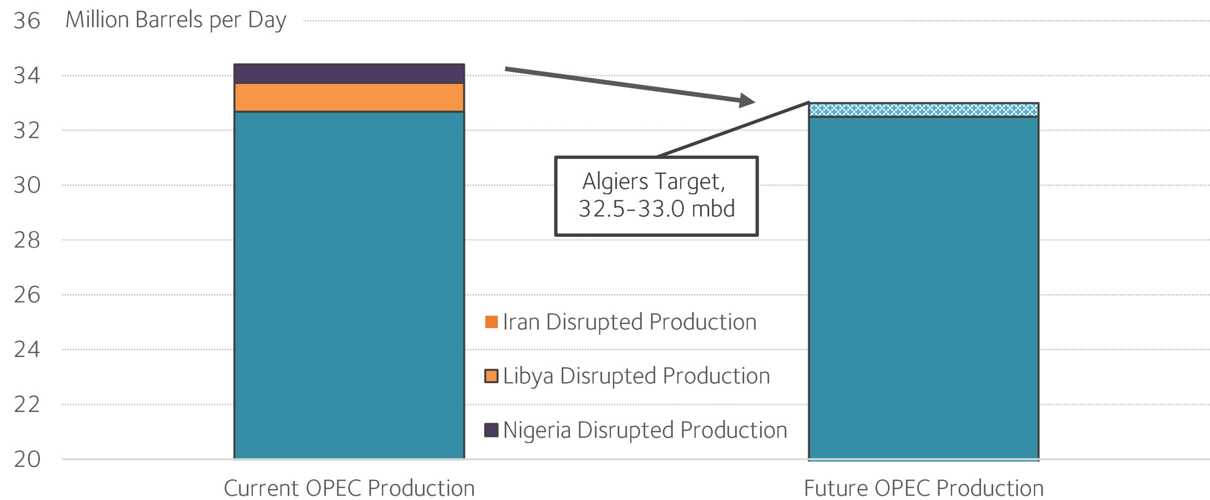
Scenario 2: A Return to Long-Term Price Elevation

It is also entirely possible that, having seen the damage that its strategy has caused to consumers around the world such as its allies in Europe and North America and to its own finances, Saudi Arabia will wish to reap the benefits of its actions and seek to maintain stable, elevated prices. In this case, Riyadh would facilitate a cohesive OPEC approach to keep supply limited and allow prices to creep upward. New non-OPEC production would gradually appear in response to higher prices, beginning with mid-cost U.S. shale supplies that are currently offline. In this scenario, Saudi Arabia would once again take the mantle as OPEC's swing producer, balancing the market through production manipulation to keep prices elevated, even if this would mean sacrificing some market share. While this might allow the U.S. shale industry to thrive again after several years of stagnation and decline, it would still allow OPEC nations, first and foremost Saudi Arabia, to profit from massive oil rents as they pump out low-cost production at artificially elevated price levels.

Scenario 3: A Breakdown of OPEC Cohesion

While the Algiers meeting signaled a potential return to the active OPEC that consumers and industry worldwide fear for its ability to elevate the price they pay for oil, it left many questions unanswered. Importantly, there is little indication of the mechanisms by which the cartel plans to achieve its declared production target. With talk of country-level production quotas being reintroduced at the upcoming November 2016 meeting, the matter of which nations will be allowed to freeze production and which will have to cut remains to be negotiated, although it is assumed that Saudi Arabia will absorb at least some of the cut.

FIGURE 7 • CUTS NEEED FOR OPEC TO MEET ALGIERS OUTPUT TARGET



Note: Current production levels from August 2016.
Source: SAFE analysis based on data from EIA

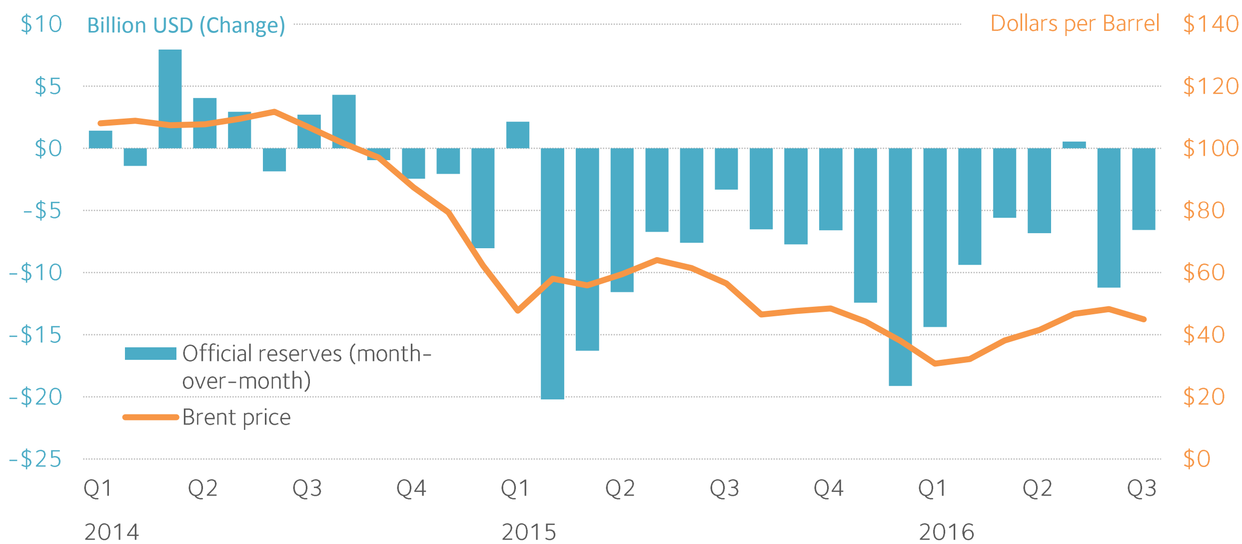
Further, OPEC nations hard-hit by geopolitical turmoil that has hamstrung their production are expecting to be allowed to return to full production levels. Iran is working towards restoring the 1.0 mbd of production it lost due to sanctions, with 0.4 mbd of capacity still to return. Nigeria is currently producing 0.7 mbd less than its capacity due in large part to the actions of separatist militants in the Niger River Delta. Libya lost 1.1 mbd, or 81 percent, of its production after the 2011 uprising that toppled former leader Moammar Qadhafi and set in motion years of upheaval and continued fighting between militias loyal to factions competing for control of the country. If these nations are able to rebuild their output levels, as they claim is their right, and all other OPEC nations freeze production at current levels, the bloc together will have to abandon more than 1.8 mbd in production just to meet the 33 mbd upper limit of the production target set at Algiers (see Figure 7).[37] Such decisions on which nations must cut production at the expense of others have long been at the heart of mistrust and disagreement within OPEC.

These complications underpin the significant levels of skepticism that have accompanied the Algiers announcement. Morgan Stanley warned that production could far exceed the 33 mbd target unless high-producing members make cuts far greater than may be palatable to Saudi Arabia, while Edward Morse of Citigroup argued, "Look deeper and the 'deal' becomes less and less meaningful, and more and more rhetorical," as Saudi Arabia typically would be expected to cut crude output by as much as 0.5 mbd in the fall and winter after the peak domestic power demand of the summer. "This remains a new world where OPEC has relinquished its role as central bank of oil, able to deprive liquidity through output cuts," he added.[38]

Should the organization be unable to agree in November 2016 on the details of the target announced in Algiers, or should the Algiers arrangement break down as countries cheat on quotas (as has happened at many times throughout OPEC's history), the return to the bloc's market management could be short-lived. The result of such a breakdown would be a quick drop in oil prices, causing more volatility and upheaval for non-OPEC producers, allowing for recurring boom and bust cycles that could last for years to come.

The Homefront: Fiscal Upheaval and a Need for Reform

FIGURE 8 • CHANGE IN SAUDI ARABIA FOREIGN CURRENCY RESERVES



Source: SAFE analysis based on data from IMF

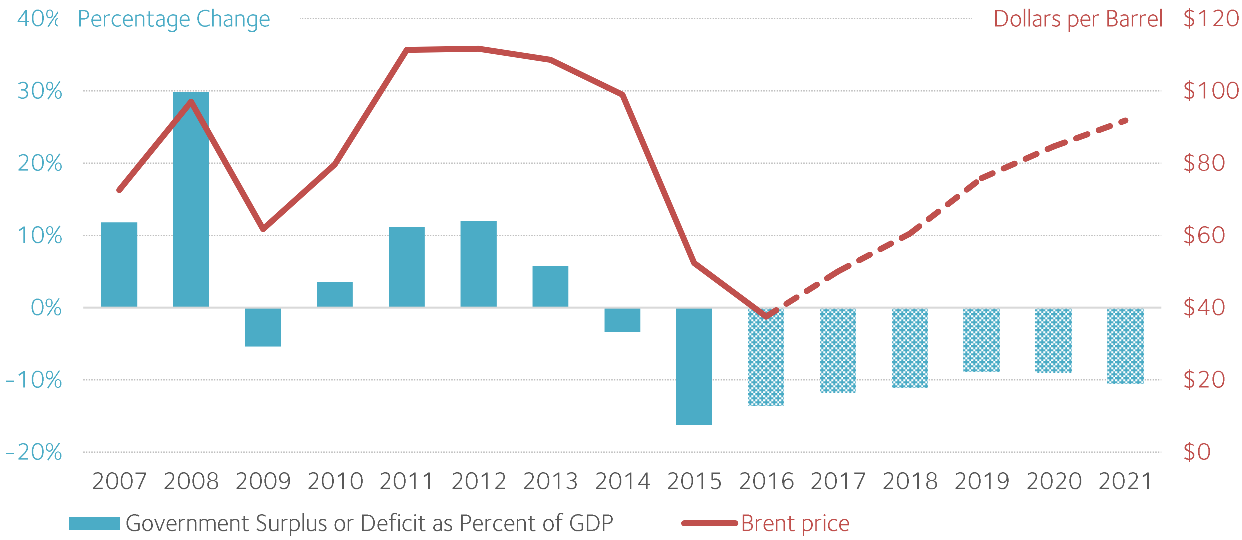
At home, Saudi Arabia has had to come to terms with the economic damage caused by decreased oil revenues driven by the price crash its production policy has sparked. Since the summer of 2014, the

[37] SAFE analysis based on data from EIA.
[38] Sid Verma, "Here's What Analysts Are Saying About the OPEC Deal," *Bloomberg*, September 29, 2016.

nation's total reserve assets have fallen by more than $180 billion[39] (see Figure 8), a collapse entirely tied to oil. Between 2014 and 2015, total government revenue dropped from 36.9 percent of GDP (of which 32.2 percent of GDP came from oil) to 25.4 percent (18.4 percent), with projections for further declines in 2016 to 22.7 percent (14.2 percent). This has prompted the nation to go from a 12.0 percent fiscal surplus as recently as 2012 to a 15.9 percent deficit in 2015 (see Figure 9).[40]

Desperate to rein in inefficient spending and increase the vibrancy and diversity of the economy, Deputy Crown Prince Mohammad bin Salman—in one of his roles as the Chairman of the Council of Economic and Development Affairs—has spearheaded the announcement of an ambitious set of reforms known as Vision 2030, revealed earlier this year. Its features include reorganizing the government to increase transparency, most notably in the state energy sector, and setting ambitious goals to diversify the economy and orient the nation toward the private sector instead of the bloated public sector that employs the majority of Saudi workers.

FIGURE 9 • SAUDI ARABIA ACCOUNTS BALANCE PERCENT OF GDP, 2007-2021



Source: SAFE analysis based on data from IMF and EIA.

There is no doubt that many reforms are being justified in the immediate term by decreased oil revenues. As the economic benefit of the planned reforms will take years to manifest, with the nation's reserves falling drastically (See Figure 9) and the country forced into tapping international debt markets for the first time in years in 2016,[41] Saudi Arabia has been forced to consider drastic spending cuts alongside its long-term reform plans. Even with plans in place to make such changes, IMF analysis shows that the fiscal breakeven price per barrel is higher than initially estimated back in Q2 of 2016.[42] Data from October indicates that Saudi Arabia needs an oil price of $79.90 per barrel to meet its fiscal

[39] IMF, "Saudi Arabia: International Reserves and Foreign Currency Liquidity," July 2016.
[40] IMF, "IMF Executive Board Concludes 2016 Article IV Consultation with Saudi Arabia," Press Release No. 16/368, July 28, 2016.
[41] Katy Barnato, "Saudi Arabia Gears Up for International Bond Debut as EMs Eye Debt Markets," CNBC, September 22, 2016.
[42] Sam Wilkon, "IMF Sees Saudi Break-Even Oil Price Drop Less Than Forecast," *Bloomberg*, October 19, 2016.

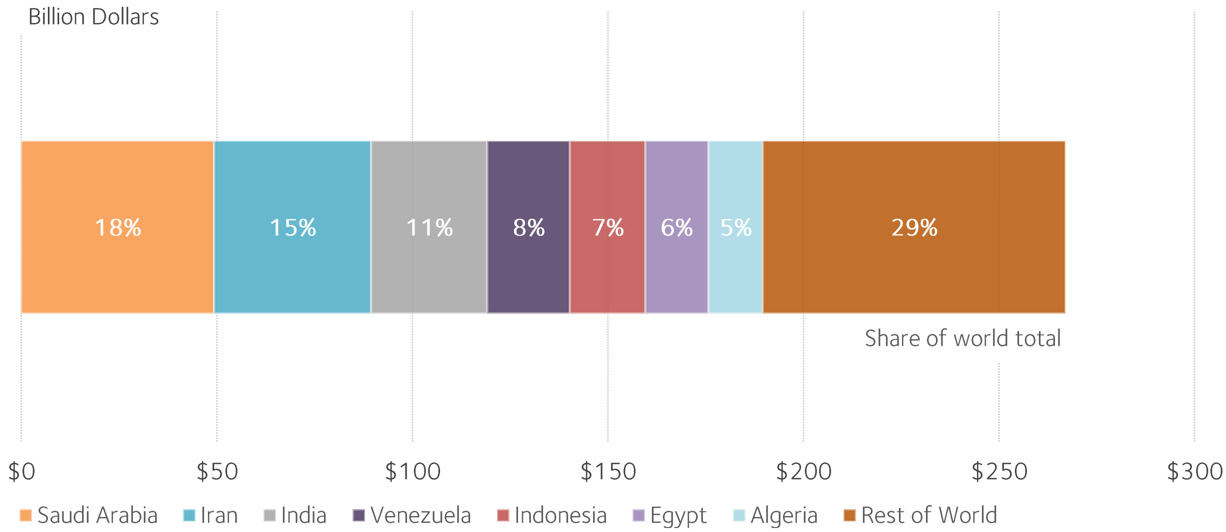
needs instead of the originally planned $66.70. While the government continues to trim the budget, there is a limit to cuts as seen in the movements to decrease domestic subsidies.[43]

Perhaps the most widely-heralded spending cut to date has come in the form of lowered subsidies for transportation fuel. Saudi Arabia has long been the nation with the highest total pre-tax oil subsidies in the world, accounting for 18 percent of the global total in 2014 (see Figure 10) and encouraging the nation's high oil consumption per capita, which has in turn lessened the country's potential oil export revenue. While Saudi Arabia raised gasoline prices by 50 percent to $0.91 per gallon, the overall fiscal impact of the move is limited as the amount saved only translates to 0.8 percent of the nation's GDP, barely putting a dent in the budget deficit.[44] Notably, this still leaves Saudi Arabia with some of the least expensive fuel prices in the world.[45] The potential social impact of fuel price increases that would make a more significant dent in the current budget deficit is likely disconcerting for the royal family.

Even at the current level of spending cuts, it remains to be seen what the impact of such reforms will be on the loyalty of a populace which has grown accustomed to government largesse. Despite the fact that fuel subsidies disproportionately help those more able to consume high levels of fuel, and therefore tend to be in less need of support, the government has defended the removal by claiming that 70 percent of subsidies under the previous system benefited high-income citizens. Eighty-six percent of Saudi youth in a recent survey stated their belief that fuel and electricity should be subsidized by the government. Thus, government efforts to counter the impression that the state is depriving needy citizens of support—such as a mooted proposal to provide direct income support to lower and middle income citizens as a replacement for fuel subsidies[46]—will have to be effective both in practice and in narrative. Otherwise, the ambitious plan to aid the Kingdom's dire fiscal trajectory while curbing overconsumption may have significant costs for the regime's popular support. Dissent after water prices went up as much as 500 percent in another liberalization reform, leading to the dismissal of an official in charge, shows that Saudi citizens have limited tolerance of the removal of handouts that have come to be expected.

[43] Id.
[44] Karen E. Young, "Drop in the Bucket: Reduced Fuel Subsidies Offer Little Deficit Relief," *The Arab Gulf States Institute in Washington,* April 6, 2016.
[45] Anthony Dipaola, "Saudis Still Buy World's 2nd-Cheapest Gasoline After Hike: Chart," *Bloomberg*, January 6, 2016.
[46] Vivian Nereim, "Saudi Prince Says Kingdom Working to Soften Subsidy Cut Blow," *Bloomberg*, April 18, 2016.

FIGURE 10 • PRE-TAX CONSUMER OIL SUBSIDIES, 2014



Source: SAFE analysis based on data from IEA

Particularly within the emerging younger generation of Saudi leadership, skepticism about the nation's ability to maintain control over the oil market—not to mention the long-term sustainability of global oil demand and thus of the main source of Saudi spending—has contributed to support for Vision 2030. If successful, the reforms will transform the Saudi economy into a diversified powerhouse of growth with a vibrant private sector and will leave behind the nation's unsustainable energy consumption habits. However, the sweeping changes bring with them the risk of economic upheaval, popular discontent, and strife within the royal family. Further, Riyadh has a history of promising to diversify away from oil and make sweeping reforms to its society and economy, and an equally long history of failing to meet those promises. Thus, Western media have met many of its initial announcements with skepticism.[47] Meanwhile, spending cuts are beginning to hit Saudi citizens hard, as state-sector employees are the latest casualties of the newfound Saudi budget constraints. Reports in September indicated that the government was considering cutting an estimated quarter of its ministries' budgets, with $20 billion in likely project cuts from areas including healthcare, housing, and transportation.[48] Soon thereafter, the Kingdom announced a set of royal decrees and cabinet statements that slashed ministers' salaries by 20 percent, cut accounts for members of the nation's consultative assembly, and limited benefits for civil servants in the public sector, which accounts for more than two-thirds of jobs held by employed Saudi citizens. It remains to be seen what impact such abrupt government expenditure changes will have on stability in the nation, but the message is clear that average Saudi citizens are likely to feel economic pain to which they are unaccustomed.

[47] See, e.g., David Ignatius, "Analysis: A 30-Year-Old Saudi Prince Could Jump-Start The Kingdom - Or Drive It Off A Cliff," *Washington Post*, June 29, 2016; and *The Economist*, "Vision or mirage? Saudi Arabia's Post-Oil Future," April 30, 2016.

[48] Stefania Bianchi, Zainab Fattah, and Matthew Martin, *Bloomberg*, "Saudi Cost-Cutting Drive May Cancel $20 Billion of Projects," September 6, 2016.

Restructuring the State's Energy Apparatus

To help centralize the planned transparency and efficiency reforms, the Kingdom has created a revamped and larger energy ministry—officially the Energy, Industry and Mineral Resources Ministry—which will handle oil and gas extraction, power generation, resource mining, and industrial development. This follows earlier moves to separate Saudi Aramco from the then-Ministry of Petroleum and Minerals, and to put Khalid al-Falih in charge of the company as part of a consolidation of government energy positions. In May 2016, plans were announced to move the company into the Public Investment Fund (PIF), Saudi Arabia's giant sovereign wealth fund, before selling up to five percent of the company in shares.

The partial privatization of Aramco is expected to bring Saudi Arabia up to $100 billion, assuming a current estimated valuation of $2 trillion for the entire company.[49] This would increase the value of liquid assets in the PIF by around 50 percent, not including other planned asset shifts and the illiquid (at least initially) remaining 95 percent of the company. On paper, this would shift the bulk of Saudi government revenue from oil income to investment income, and give Saudi Arabia by far the largest sovereign wealth fund in the world, without much apparent functional change. As Falih noted at the June 2016 OPEC meeting, unlike most publicly owned oil companies, Saudi Aramco would continue to maintain idle spare capacity after its IPO. While sovereign control over business decisions would be abnormal for many publicly traded companies, Falih told reporters at the June 2016 OPEC meeting that the relationship between the state and the national oil company (NOC) has long been a fruitful "win-win policy" that has created immense benefit for the company. "Investors will have to accept this reality," he said.[50] Decision-making for the company would remain effectively in the hands of the government, which through the PIF would clearly remain the majority owner. Even with greater autonomy, Aramco would feature a board effectively executing the king's wishes.

Many observers saw the decision to undertake an Aramco IPO as a sign that Saudi Arabia was confirming its move away from active market management and could possibly be a death knell for OPEC as the Kingdom moved to an independent oil policy.[51] However, Saudi Arabia's active role in seeking an OPEC production cut since then has proven that OPEC still has value for Riyadh. Thus, the legal question of how the nation will remain a member of OPEC while its national oil company is traded in western exchanges—where OPEC membership would possibly leave the firm, and any investors, liable to antitrust prosecution, remains unanswered.

The IPO would necessarily increase the transparency of the company. To list the company on a major exchange like those in New York or London will require the firm to disclose a great deal of externally verified information on the company's finances, operations, and wealth distribution, and it is reportedly overhauling its accounts to be more industry-friendly in format in time for its 2017 fiscal year financial report.[52] The reasons for voluntarily taking on this requirement are understandably the subject of speculation. It is possible that allowing the world at large to see how Saudi Aramco's (and thus the government's) income has been affected by low oil prices would be a way to show Saudi citizens, who are likely to be unhappy about the loss of fuel subsidies and other forms of government largesse, that such cuts are due to actual decreases in revenue. As one Saudi source told *The Guardian* in May, "If people see that everyone is biting the bullet then they'll accept taxes without asking for a parliament as long as they don't feel someone else is getting their bread."[53] Maintaining progress toward this stated goal of transparency will be illuminating not only for Saudi citizens but also for the global economy. Even if investors are unable to significantly affect Aramco's policy through their relatively minor collective stake, the global oil market could gain a great deal of information from the currently opaque oil company that would improve the ability to predict and prepare for Saudi oil policy.

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[49] Rania El Gamal, "Saudi Aramco Finalizes IPO Options and Plans Global Expansion," *Reuters*, May 12, 2016.
[50] Id at 47.
[51] Wael Mahdi and Grant Smith, "Saudi Arabia's New Oil Plan Shows It's Just Not that Into OPEC," *Bloomberg*, May 23, 2016.
[52] Anjli Raval, David Sheppard, and Neil Hume, "Saudi Aramco Prepares to Publish its Accounts for First Time," *Financial Times*, October 6, 2016.
[53] Ian Black, "Mohammed bin Salman: The Prince Trying to Wean Saudi Arabia Off Oil," *The Guardian,* May 13, 2016.

To see progress on the economic diversification envisaged in the Vision 2030 plan, in addition to the obvious metrics of percentage of government revenue coming from oil and related industries, it will be imperative to see changes in employment trends. An increase in private-sector employment will not only lessen the worries of citizens about the impact of decreased government spending, but will also directly lessen the dependence of the economy on oil revenue. Progress is desperately needed. As of the first half of 2015, the unemployment rate for Saudi citizens was 11.6 percent, a high number made even more staggering considering the fact that only 41.2 percent of Saudis of working age participate in the labor market. Saudi citizens are dwarfed by foreign workers in the private sector, only accounting for 22.1 percent of employees (albeit much in much higher paying positions).[54] If progress is to be made toward the goals of Vision 2030, and prevent Saudi Arabia from heading toward long-term economic stagnation and vulnerability to internal turmoil should the oil market shift, rapid improvement in each of these metrics will be imperative.

Fixing an Unsustainable Pattern of Energy Consumption

Reversing the problem of the growing domestic consumption that cuts Saudi Arabia's oil export income potential will require addressing transportation and power generation. Most of Saudi Arabia's current power generation comes from gas-fired plants that also desalinate water. However, the nation produces natural gas almost entirely as associated gas from its oil production, and increased power demand in recent decades has meant that the country is far short of the gas it needs. Shortages require the country to directly burn crude oil to meet power demand, with average use of crude in power generation over the past five years exceeding 0.5 mbd (and peaking near 0.9 mbd during the summer months, when air conditioning needs drive the country's power usage).[55] Saudi Arabia uses more oil in power generation than any other country, with 24 percent of its power coming from oil sources, well above the global weighted average of 3.6 percent.[56] To break this pattern, investments in stand-alone gas production are part of the power generation plan going forward; under Vision 2030, increased natural gas production and its use in power generation is aimed at making up 70 percent of the growing electricity supply.[57] However, such investments will require time to come to fruition.

Longer term, to help curb wasteful consumption of domestic hydrocarbons that could be the source of higher export revenue, the Vision 2030 program calls for 9.5 gigawatts (GW) of renewable energy to be produced domestically by 2030 with an emphasis on wind and solar energy. There are ambitious intermediate targets being set by the government, with the National Transformation Plan for 2020 calling for an initial development of 3.45 GW of wind, solar, and nuclear power, accounting for 4 percent of the nation's estimated power needs.[58] This comes as part of goal-setting for the King Abdullah City for Atomic and Renewable Energy (KACARE); however, it falls short of initial optimistic scenarios for KACARE when it was launched in 2010, including meeting 50 percent of the nation's energy needs with nuclear and renewable plants by 2032 (with 41 GW of solar and 17 GW of nuclear capacity), which has since been pushed back to 2040.[59] Whether or not the new initial 2020 goals are

[54] Jadwa Investment, "Saudi Labor Market Outlook: Current and Long-Term Challenges," October 2015.
[55] Jean-François Seznec, The Atlantic Council, "Saudi Energy Changes: The End of the Rentier State?," March 2016 at 3-13.
[56] The World Bank, Electricity Production from Oil Sources (% of Total).
[57] Jadwa Investment, "Natural Gas and the Vision 2030," October 2016 at 7.
[58] Transformation Plan, King Abdullah City for Atomic and Renewable Energy.
[59] LeAnne Graves, "Saudi Arabia Earmarks Millions of Riyals for Renewables," *The National*, June 7, 2016.

met will provide insight as to the reliability of the government's commitment to the renewable energy goals of Vision 2030.

However, these moves do not do much to change Saudi plans to remain the global power in the oil market. If Saudi Arabia realizes that oil will become relatively less important to the world of the future, it appears to be banking on the likelihood that energy needs as a whole will increase so as to result in significantly increasing oil demand through the medium term. Saudi energy minister Khalid al-Falih said during a visit to Houston in June that even if the share of oil in the global energy mix drops to 25 percent from closer to 30, a much higher absolute level of world energy needs means that more barrels will be needed through 2030 or 2040 at least.[60]

Security in the Middle East and at Home

Prospects for Instability at Home

Saudi Arabia's conflicts with Iran and its allies have the potential to be a double-edged sword of security and stability at home. On the one hand, confronting Iran remains very popular among a fairly conservative and patriotic populace. In fact, with spending cuts looming and questions increasingly being asked about the state of the nation's finances as it embarks on an unprecedented set of reforms, the effects of the current state of the oil market may also be a contributing factor behind Saudi Arabia's hawkishness. Yet on the other hand, alienating its Shi'a population could cause unrest—and raise the risk of supply disruption—in the country's Eastern Province, the heartland of not only the Saudi oil industry but also its Shi'a community.

With the nation's total reserve assets falling and fiscal deficits prompting spending cuts due to the low-price environment, raising the possibility of popular discontent, the killing of prominent Shi'a sheikh Nimr al-Nimr rallied jingoistic fervor among much of the conservative Sunni population that forms the base of support for the government.[61] Particularly aided by the context of the Yemen conflict, public displays of antipathy against Iran have reportedly crossed over into open disparagement of Shi'a in general with increasing regularity. Such sectarian intolerance has been condoned and sometimes led by authority figures including televised clerics, with even the royally appointed Grand Mufti Abdul Aziz Al Sheikh reportedly calling Shiites liars seeking the destabilization of the Islamic world.[62] Further, as the 2016 Hajj approached with Iran and Saudi Arabia having been unable to come to an agreement that would let Iranian pilgrims attend, a war of words ensued in which Al Sheikh said that Iranians are "not Muslims" and that "their hostility toward Muslims is an old one,"[63] rhetoric that can only serve to exacerbate the alienation felt by the Saudi Shi'a. Regardless of the level of Iranian involvement in efforts at uprisings in the Eastern Province, the intensified rhetorical, economic, diplomatic, and proxy conflict with Iran and Shi'a could cause greater instability there from within. Currently, since the outburst of protests that followed the execution of Nimr, hotbeds of Shi'a dissent like Awamiyah and Qatif have calmed somewhat, partially in response to the strong security operations of the central government there,[64] and partially because of a sense that ISIS attacks against Shi'a targets are a bigger

[60] *Asharq Alawsat*, "Energy Minister: vision 2030 Won't Turn Off Oil Industry," June 23, 2016.
[61] *The New York Times*, "Saudis Applaud a Tougher Line Against Tehran," January 6, 2015.
[62] Ahmed Al Omran and Margherita Stancati, "Standoff With Iran Inflames Anti-Shiite Feelings in Saudi Arabia," *The Wall Street Journal*, August 31, 2016.
[63] Ladane Nasseri and Nour Al Ali, "Saudi Arabia and Iran Trade Insults Ahead of Hajj Pilgrimage," *Bloomberg*, September 7, 2016.
[64] Al Omran and Stancati, *supra*.

threat than marginalization from the House of Saud.[65] However, increasing marginalization could revive calls for revolution or attacks on oil infrastructure.

A SAFE study published in February 2016 explored the potential of internal upheaval disrupting Saudi production or export capacity. It found that unrest in the Eastern Province that was significant enough to make the infrastructure of Saudi Aramco there inoperable through sabotage, terrorism, or other means could put up to 9 mbd, or nearly 10 percent of global crude oil supply, at risk. This is mostly due to the presence of Ghawar, the world's largest conventional field at around 6 mbd, and the Abqaiq processing facility, which handles an estimated 7 mbd including much of Ghawar's oil, near the hotbeds of discontent.[66] Not only would any attacks removing any significant portion of this production cripple Saudi Arabia financially, but it could quickly remove all excess supply from the global crude oil market and cause drastic price spikes. Other forms of unrest, such as a chaotic succession struggle or popular discontent over decreased social spending and employment by the government—both of which are plausible scenarios in the near-to-medium term—could enhance a sense of instability and contribute to the possibility of such an uprising, which state power currently has been deterring.

A destabilizing wildcard event that cannot be ruled out is a succession crisis in the Kingdom. King Salman is reportedly ailing, and while the decree replacing Prince Muqrin in the line of succession and replacing him with Mohammad bin Nayef and Mohammad bin Salman was officially immutable, so had been the prior decree placing Muqrin in the line of succession.[67] Particularly with the bold moves being made by the two younger princes at home and abroad, there could be pushback against following the plan to skip to generation of King Abdulaziz's grandsons should Salman die. In addition, there could be support for other grandsons of the Kingdom's founder to supplant Mohammad bin Nayef, or rumors of rivalry between Mohammad bin Nayef and Mohammad bin Salman could be vindicated in the form of a battle for power. While all of these events are fairly unlikely, if they occur, they could paralyze the Kingdom's decision-making for an extended time, both in terms of energy policy and in domestic security, which could encourage uprisings and unrest that could take oil facilities offline.

A Regional Standoff with Iran

Saudi Arabia's regional security concerns primarily involve its archrival Iran in one way or another, and with both nations major OPEC powers who sit across the Persian Gulf from one another, any strife between the two could have catastrophic ramifications for the global oil trade. The potential oil market impact of a Saudi conflict with Iran would be even greater than that of unrest confined to Saudi Arabia, as covered in SAFE's February 2016 report.[68] Even if the Shi'a of the Eastern Province did not revolt, an escalation to open war between Saudi Arabia and Iran—admittedly a worst-case scenario—could put over 19 mbd of oil at risk when all coastal oil installations along the Persian Gulf, which could be targeted whether belonging to Iran, Saudi Arabia, or nations allied with one or the other, are considered.[69]

The two nations have long been at odds and, this decade, have found themselves supporting opposite sides in two bloody and persistent wars. First, in the Syrian civil war, Saudi Arabia has given support to the coalition of rebel forces fighting to depose Bashar al-Assad, a staunch ally of Iran just as his father had been during his time as Syrian leader. Elsewhere, the Saudi military operation in Yemen to aid the

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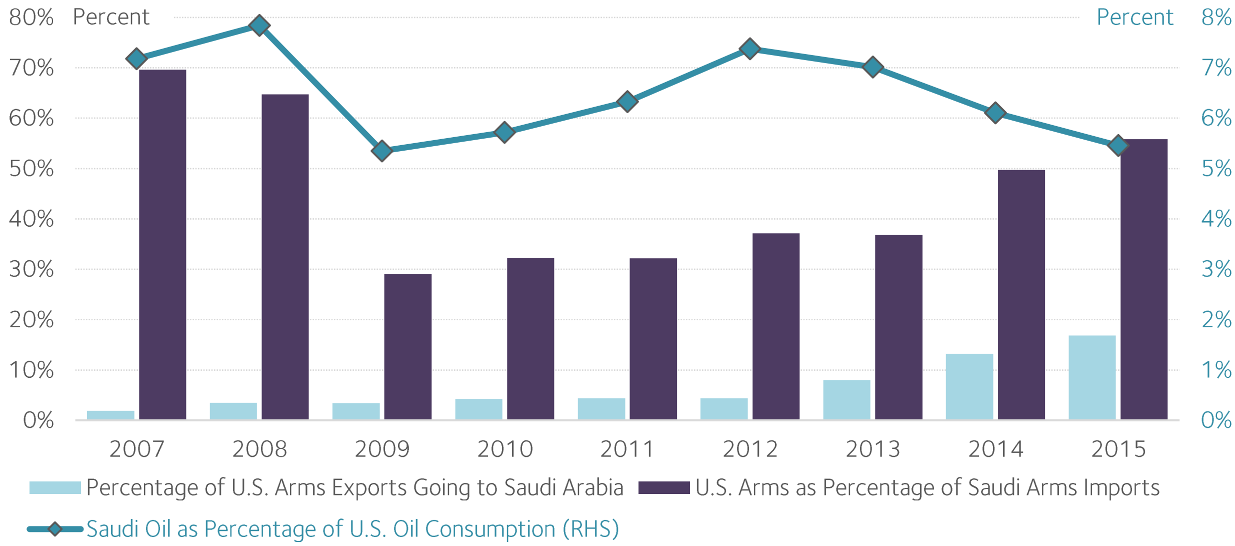
65 Yaroslav Trofimov, "Saudis Contain Shiite Unrest at Home," *The Wall Street Journal*, September 1, 2016.
66 SAFE, "Rising Tensions Between Saudi Arabia and Iran Threaten Regional Oil Supplies," February 4, 2016.
67 *Al Arabiya*, "Prince Muqrin bin Abdulaziz to Receive Pledges of Allegiance," March 29, 2014.
68 SAFE, "Rising Tensions Between Saudi Arabia and Iran Threaten Regional Oil Supplies," February 4, 2016.
69 Id.

embattled government of Abdu Rabu Mansour Hadi has brought even greater scrutiny and has the potential to be far more impactful on the Kingdom's stability and its foreign relations. When, championed by Mohammed bin Salman, a Saudi-led coalition began bombing Yemen in March 2015, it was envisioned as a swift operation that would quickly reclaim power from the Shi'i Houthi rebels who had taken Yemen's capital city Sana'a and other strategic cities. More than a year later, bombings have continued to damage not only enemy targets but cause frequent civilian casualties with 2.8 million Yemenis displaced by the violence,[70] and Saudi attacks blamed for cutting off access routes for medical and food aid.[71] The UN reports that more than 10,000 civilians have been killed or wounded since the Saudi-led coalition began operations last year, averaging 13 casualties daily,[72] drawing condemnation for Riyadh even from its allies but also drawing increased acrimony from Iran and Shi'a populations within Saudi Arabia and allied Gulf monarchies that could spark instability or war along oil transit routes.

Against this backdrop, the execution of Nimr in January 2016 led not only to upheaval among Saudi Arabia's minority Shi'a but also to the storming of the Saudi Embassy in Tehran by hardline protesters. These protests prompted a rupture of diplomatic relations between the two countries and increased Saudi efforts to get its allies to isolate Iran diplomatically and economically. While neither Iran nor Saudi Arabia is seeking direct war with the other, since King Salman ascended the throne a year ago a more assertive approach to domestic and regional threats has emerged in the Kingdom. Crown Prince Mohammad bin Nayef and Defense Minister Mohammad bin Salman have advanced hawkishness through a ruthless approach to counterterrorism and by leading Saudi Arabia into the Yemen war, respectively. Likewise, even with the shift towards greater diplomacy with the West, Iran's foreign policy hawks and the Islamic Revolutionary Guard Corps remain extremely assertive within the region, and the potential for a conflict that could cripple oil production or export by the two OPEC powers is raised by the recent deepening of the dispute.

[70] UNICEF, Yemen Humanitarian Situation Report, June 2016.
[71] Alex Emmons, "The Death Toll in Yemen Is So High the Red Cross Has Started Donating Morgues to Hospitals," *The Intercept,* August 25, 2016.
[72] Ben Norton, "Despite 10,000 Civilian Casualties in Yemen – 13 per day – U.S. Reaffirms Support for Saudi Arabia," *Salon*, September 2, 2016.

FIGURE 11 • U.S.-SAUDI ARABIA ARMS TRADE AND SAUDI OIL CONSUMPTION



Source: SAFE analysis based on data from the Stockholm International Peace Research Institute and EIA.

Given the sectarian overtones of the conflict, the Yemen uprising and continued Saudi efforts to quash it has the potential to intensify ongoing fighting throughout the Middle East that shares a Sunni versus Shi'a element. Bahrain, while relatively quiet in recent months after extensive unrest, has a marginalized Shi'a majority that remains deeply resentful of Saudi military actions to put down their protests in 2011, and extended conflict could spark sectarian violence in the Persian Gulf nation. This resentment only stands to be exacerbated by Bahrain's participation in the Saudi-led military operations. While unlikely, regional war that incorporates multiple nations along the Persian Gulf, paralyzing an irreplaceable amount of the global oil trade, cannot be ruled out.

Danger of a Rift with the United States

Amidst the increasing questions over the impact and future of American support for the Saudi campaign in Yemen, broader worries about Washington's relationship with Riyadh have surfaced. The U.S. foreign policy community at large views the Kingdom as holding a curious dual role in the challenge of extremist Islam. Both major party presidential candidates have publicly condemned Saudi funding for ultraconservative religious schools and institutions at home and throughout the world, and their impact on support for terrorism. Even Farah Pandith, the State Department's first ever special representative to Muslim communities, has warned that in each nation she visited on behalf of the Obama administration, "the Wahhabi influence was an insidious presence, changing the local sense of identity, displacing historic, culturally vibrant forms of Islamic practice," all with the support of Saudi money.[73] This has become an increasingly accepted viewpoint in Washington, even as Saudi authorities have remained essential U.S. allies in counterterrorism, making the Saudis "both the arsonists and the firefighters" of extremism, as William McCants of the Brookings Institution put it.[74]

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[73] Farah Pandith, "The World Needs a Long-Term Strategy for Defeating Extremism," *The New York Times,* December 8, 2015.
[74] Scott Shane, "Saudis and Extremism: Both the Arsonists and the Firefighters," *The New York Times,* August 25, 2016.

The humanitarian disaster in Yemen has put further strain on the close relationship between the United States and Saudi Arabia. In August, despite claiming the move was unrelated to criticism of the civilian casualties, the number of U.S. military personnel advising the Saudi effort was dropped from 45 to five, with a Pentagon statement affirming, "The cooperation that we've extended to Saudi Arabia since the conflict escalated again is modest and it is not a blank check."[75] Many Democrats and Republicans alike, including Senators Rand Paul (R-KY) and Chris Murphy (D-CT) and Rep. Ted Lieu (D-CA) have been outspoken in their criticism of U.S. military support and arms sales for Saudi Arabia. Senator Paul called the nation "an unreliable ally with a poor human rights record," Senator Murphy argued, "Every single civilian death inside Yemen is attributable to the United States,"[76] and Representative Lieu went further to say, "By assisting Saudi Arabia, the United States is aiding and abetting what appears to be war crimes in Yemen."[77] Even Obama administration officials have become increasingly willing to criticize Riyadh, with Ambassador to the UN Samantha Power tweeting in August that strikes on hospitals, schools, and other critical infrastructure "must end" after the destruction of a bridge crucial for delivery of aid and services.[78]

This heightened scrutiny has come against the backdrop of continuing arms sales to Riyadh, with the State Department approving the sale of military equipment in August worth $1.15 billion.[79] While this sale overcame an effort to derail it by Senators Paul and Murphy, who mustered 27 votes against its approval,[80] Saudi Arabia would no doubt want criticism of its actions to avoid rising to the level of threatening the arms relationship it has with the United States, one which has remained strong even as the crude oil flows between the two nations have declined in recent years (see Figure 11). In both 2014 and 2015, no country imported more arms from the United States than Saudi Arabia. Last year, the Saudi military received 56 percent of its arms imports from the U.S., a figure which has dropped below 30 percent only once in the past decade. Meanwhile, Saudi Arabia has become an increasingly important and reliable customer for U.S. arms. Its share of American arms exports rose each year from 2009 to 2015, increasing from under 3 percent to 17 percent.[81]

Given the recent history of the close security relationship between Saudi Arabia and the United States, any serious rift between the two nations would be momentous. With Saudi crude making up a lower share of American consumption last year than any other year this century (with the exception of the recession-hit year of 2009),[82] a greater perceived independence may embolden Saudi critics in Washington and make this more likely. Senator Dick Durbin (D-IL) recently said, "It is true that when we were so dependent on their oil they had more influence on us. We would still like to have them as allies, but on the right terms."[83] Further, although the seriousness of such a threat have been

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[75] Phil Stewart, "U.S. Withdraws Staff from Saudi Arabia Dedicated to Yemen Planning," *Reuters*, August 19, 2016.
[76] Rachael Revesz, "Senators Mull Plan to Block U.S. Arms Deal with Saudi Arabia as Death Toll Grows in Yemen," *The Independent*, August 15, 2016.
[77] Ben Norton, "A Congressman Campaigns to 'Stop the Madness' of U.S. Support for Saudi Bombing in Yemen," *The Intercept,* August 22, 2016.
[78] Nahal Toosi, "The Mideast Conflict Obama Still Could Solve," *Politico*, August 23, 2016.
[79] Idrees Ali, "U.S. Approves $1.15 Billion Sale of Tanks, Equipment to Saudi Arabia," Reuters, August 9, 2016.
[80] Patricia Zengerle, "Senate Clears Way for $1.15 Billion Arms Sale to Saudi Arabia," Reuters, September 22, 2016.
[81] SAFE analysis based on data from the Stockholm International Peace Research Institute.
[82] SAFE analysis based on data from EIA.
[83] Steven Dennis and Roxana Tiron, "Saudi Arabia's Clout in Washington Isn't What It Used to Be," *Bloomberg,* September 21, 2016.

questioned due to its scale, Foreign Minister Adel al-Jubeir reportedly warned high-level American officials in March that the Kingdom would be forced to sell up to $750 billion in U.S. treasury securities and other assets if a law allowing 9/11 victims to sue Saudi Arabia were passed, as happened over President Obama's veto in September. If this happened, the potential decline in the financial relationship between Saudi Arabia and the United States would further weaken the sense of indispensability that has long characterized the alliance on both sides. Speaking after the override, F. Gregory Gause of Texas A&M University noted, "This is not a time when U.S.-Saudi relations have much popular support on either side."[84] If Saudi Arabia is willing to show dissent to the U.S. through actions in the securities market, there is little reason to think it will avoid exerting its oil market power for the same end.

While Saudi oil imports may be replaceable, as long as the United States relies on oil, it will wish to maintain stability in the Persian Gulf to prevent price spikes and volatility, and this will mean sustaining the security relationship with Riyadh if at all possible. Despite Riyadh's concerns, Washington's distrust of Iran's regional motives remains high, and will only increase if a more combative candidate replaces the relatively pragmatic Hassan Rouhani in next year's Iranian presidential election. However, should a serious quarrel between the United States and its ally emerge, Saudi clout in the oil market could be used as a deterrent or retaliatory mechanism if needed, as the nation's ability to quickly spike prices is well established, even if a more prolonged output cut would likely allow U.S. production to increase and other nations to seize market share.

The Impact of Saudi Action on the United States

Saudi Arabia, despite its close relationship with the United States, has contributed to economic upheaval in the United States through its oil production policy for many stretches since the 1970s and is likely to do so in the coming years. There have, it must be noted, been times when Saudi Arabia has made production decisions out of a desire to help the U.S. economy, such as in 1992 when it acted against the rest of OPEC's member countries and effectively vetoed a production cut to avoid damaging the already fragile U.S. economy. Such apparent beneficence can have other more self-serving motivations—Saudi Arabia likely wanted to help the re-election chances of President George H.W. Bush, who had shown a strong willingness to help America's allies in the Persian Gulf by launching Operation Desert Storm[85]—but regardless, Saudi Arabia knows that without some degree of stability in the world's most powerful economy, demand for the oil that has been its economic lifeblood will plummet. However, this desire for stable prices to keep demand steady is tempered by its desire to maintain market share through manipulation of its spare capacity, which, as has been seen most vividly in the past two years, can lead to wild oil price volatility that harms U.S. consumers and oil producers alike.

Further, Saudi Arabia has somewhat unpredictably and counterintuitively switched back and forth between a desire to foster market stability and a willingness to cause economic pain through the price volatility spurred by its policies. Despite talk of Saudi Arabia's response to the oil spike of 2008, in which increased production prompted relief from high prices, it is often overlooked that the road leading to prices of nearly $150 per barrel in July 2008 was paved with supply cuts from OPEC nations. In particular, Saudi Arabia cut its oil output drastically in 2006 and 2007, recording seven consecutive quarters of year-over-year decreases. The drastic increase in global oil prices was a contributing factor to the Great Recession that began in 2008, and any price relief instilled by renewed production

[84] Juliet Eilperin and Karoun Demirjian, "Congress Thwarts Obama on Bill Allowing 9/11 Lawsuits Against Saudi Arabia," *Washington Post*, September 28, 2016.
[85] Alhajji and Ruettner, *supra.*

increases were scant comfort as the United States lost more than 5 percent of its GDP, the worst economic crisis since the Great Depression.

With the nation still almost entirely dependent on petroleum to fuel the transportation sector, fluctuating and unpredictable oil prices expose the country's economy to the effects of volatility. Volatility creates uncertainty and economic dislocation and affects planning and budgetary decisions, resulting in less efficient resource allocations and ultimately preventing the U.S. economy from maximizing its potential. This is a view shared by American businesses dependent on petroleum. As Jeffrey Smisek, then the CEO of United Airlines and former head of Continental, said, "Fuel price volatility is the most difficult thing for us. Even if fuel were $180 a barrel we would still exist as a business, albeit smaller, because people need to fly. What kills us is the wild swings in volatility as you can't price those swings on the upside or downside."[86]

The Toll on the U.S. Oil Industry

While it remains to be seen what course Riyadh takes in its medium and long-term oil production policy and how well it will maintain its efforts to rein in consumption and reform the economy through its Vision 2030 plan, Saudi Arabia can be expected to look out for its own economic interests. If this means instilling cyclical production level changes that prevent stable investment in shale oil in the United States, such collateral damage will be acceptable for Riyadh. Blocking investment in non-OPEC fields, wherever they may be, will be a part of the Saudi priority as long as the ensuing price elevation does not entirely cripple consuming nations in a way that slashes their demand for Saudi crude. "When it comes to their bottom line, U.S. shale is a factor but it's not the only factor," says David Weinberg, a Persian Gulf expert at the Foundation for Defense of Democracies.[87]

Most directly, the price volatility fostered by Saudi policy creates a highly uncertain investment climate and wreaks havoc on American jobs. In the United States, spending is being affected more severely than elsewhere, and could decline by approximately $100 billion (or more than 50 percent) between 2014 and 2016.[88] So far in 2016, there have been more than 61 oil industry bankruptcies.[89] This decline in upstream spending has also led to some 180,000 workers losing their jobs since employment in the sector peaked in September 2014.[90] These elements are sustaining recessionary conditions in areas of the country, and laying the groundwork for future supply shortages.

U.S. Oil Dependence Constrains U.S. Military Options

The military relationship between the United States and Saudi Arabia remains strong, but an increasingly aggressive Saudi strategy could bring complications for the U.S. military. With international condemnation of the Yemen campaign apparently causing no change in the Saudi-led coalition's strategy, complications from an extended war could draw the United States back in despite a decrease in the number of support staff provided by the U.S. military. While the United States remains a strong ally of Saudi Arabia in part due to the crucial role the Kingdom plays as the world's pivotal oil supplier, its foreign policy options have remained deeply constrained. The U.S. military has given logistical support to Riyadh for its operations in Yemen—all the while aware that the extensive nature of the campaign poses risks of unleashing further regional chaos and emboldening terrorist groups with deeply anti-

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[86] *Airlines International*, "CEO Interview: The Challenges for Continental Airlines and the Industry," February 1, 2010.
[87] SAFE interview with David Weinberg, September 27, 2016.
[88] Id.
[89] Haynes and Boone, LLP. "Oil Patch Bankruptcy Monitor," October 19, 2016.
[90] SAFE analysis based on data from BLS.

American sentiments—and pressured the Saudi government to cease the bombing campaign.[91] The heightened tensions in the region now may serve to make some wary of Riyadh's strategy, but the importance of Saudi Arabia's oil means little is likely to change in terms of U.S. military support for the country. Even as U.S. imports of Saudi oil have declined, continued U.S. oil dependence means that the risk of insecurity in the most important oil exporter in the world ties the U.S. military to its problematic ally for the foreseeable future.

The sparking of a more open conflict in the region between Saudi Arabia and Iran would necessitate U.S. involvement, regardless of American military priorities elsewhere. The United States has repeatedly sought to assuage Saudi concerns that Iran will expand its regional power in the aftermath of the removal of nuclear sanctions, culminating with a very public expression of support for Riyadh against Iran during King Salman's visit to Washington last September.[92] The United States would thus be unlikely to avoid committing significant military assistance to Riyadh in a conflict. These constraints are increased by connections to Saudi allies in the region, who have also expressed concern about the nuclear deal with Iran and sought assurances from Washington, including Bahrain, Kuwait, the UAE, and Qatar, all of which host thousands of U.S. troops. Further, an intensified conflict would have the side effect of complicating efforts to cultivate a more robust regional response against ISIS, which could have security implications for U.S. interests worldwide.

Conclusion

Oil-rich countries derive their market power from immense natural endowments of petroleum, which are manifested in the short term through effective use of spare production capacity. Nowhere is this influence more apparent than in Saudi Arabia, which uses its access to relatively inexpensive vast petroleum resources and the scarcity of global spare capacity to its advantage. Through its strategic coordination of its oil resources, the Kingdom has a track record of quickly ramping up and down output to drive dynamic—and frequently volatile—changes in the global oil market. Regardless of the debate over OPEC's ability to cooperate, Saudi Arabia has made the group's impact felt by using its own immense market power to actively manipulate the oil market, most famously in response to U.S. involvement in the 1973 Arab-Israeli War. The interruption of oil shipments to the United States and several other countries caused huge delivery shortfalls and led to the tripling of prices between 1973 and 1974, prompting a recession in the United States, a process largely repeated six years later.

The fluctuations in global oil prices sparked by Saudi action create long-term distortions that affect the United States and the global economy. By systematically underinvesting in relatively cheap production capacity, Saudi Arabia's strategic use of spare capacity forces investment to occur in relatively higher-cost resources in non-OPEC countries, leading to sustained higher prices. Current market dynamics provide ample evidence of how Saudi Arabia's unpredictable manipulation of the supply curve can leave oil-dependent economies woefully unprepared. As prices began falling during the summer of 2014, due to factors including slower-than-anticipated global demand and increased non-OPEC production led by U.S. shale, most observers expected Saudi Arabia and its allies to react by cutting production to keep the market balanced and prices high and relatively stable. However, faced with a continued downward trend in global market share, Saudi Arabia refused to cut production, leading all OPEC members to keep production levels elevated, allowing oil prices to continue their freefall. Given that several of its members would have preferred to keep prices high, OPEC's November 2014 strategy of maintaining

[91] Guy Taylor, "U.S. Pressures Saudi Arabia to Stop Bombing Iran-Backed Rebels in Yemen," *Washington Times*, April 30, 2015.
[92] See, e.g., David Jackson, "Obama Reassures Saudi Arabia Over Iran," *USA Today*, September 4, 2015.

production levels underscored Saudi Arabia's political clout within the cartel, as well as its sheer market power as the price maker and arbiter of global spare production capacity.

Recent developments in the Kingdom suggest new uncertainty, however. Saudi Arabia's reform plans to pivot away from petroleum resources promises to increase the overall economic performance of the Kingdom by boosting output and expanding the workforce to include more Saudis. But it also casts doubt on the future of internal stability within the Kingdom. As fewer Saudis have access to the benefits of the country's petroleum largesse, citizens may demand social and political reforms, or members of the Saudi royal family may urge changes in the country's succession policy. Such a scenario would carry enormous consequences for its proxy war with Iran and call into question the security of oil exports from the Gulf. Even the rumblings of internal disputes within the Saudi royal family portend immediate consequences in global oil prices. Any sustained period of domestic unrest, especially in the country's mostly Shi'a Eastern Province, would have profound implications for the global oil market.

From a U.S. perspective, these current developments make future planning and investment decisions very difficult, clouding long-term price stability and the ability of U.S. consumers or business to respond to any major oil market disruption. OPEC, with Saudi Arabia as its clear and decisive leader, actively utilizes its control over inexpensive oil supplies to undermine free market investment choices and sharpen the economic vulnerabilities of U.S. producers and consumers. The clearest way for the United States to protect its economy from the havoc that these actions cause is to sharply reduce the nation's near-complete dependence on oil in the transportation sector, through increased vehicle efficiency, development of advanced fuel vehicle technology and the harnessing of self-driving vehicles to drive a revolution in the adoption of alternatives to petroleum. Such efforts to ensure that oil is no longer such a strategic commodity holding the nation's economy hostage are an essential part of any coherent energy security strategy, but they will take time to bear fruit. Since creating effective protection to oil market manipulation will take decades, in addition to pursuing policies that will boost domestic oil supply, increase efficiency and broaden the use of advanced transportation fuels, the nation must examine and consider challenging the market and regulatory structures that give OPEC and national oil companies their power in the near term.

To achieve greater power in the global market, the United States should look to export shale oil production technology, especially to close allies. Rapidly rising levels of highly flexible, non-OPEC oil production in the middle of the cost curve will dilute the ability of OPEC to assert market power. Shale resources are widespread globally, and with the right mix of know-how and regulatory best practices, the shale industry will grow beyond the United States, ideally expanding the quantity of oil production in the middle of the cost curve that can withstand periods of low prices driven by OPEC. From a regulatory perspective, the United States should find ways to press OPEC, and Saudi Arabia in particular, into formally and permanently ceasing attempts at collusion and opening their markets to freer international competition. Given that many of them are WTO members and that withholding supplies is a WTO violation, the United States must explore examples of international trade law violations by OPEC and its member nations and seek enforcement.

While the market structure that would evolve from these steps would undoubtedly be advantageous over the long term, the elimination of spare capacity would leave the world reliant on inventories to manage short term supply crises. Given that fact, it will be critical for governments to have transparent, effective means for deploying strategic stocks quickly, and the United States should play a leading role not only in maintaining a strong and responsive Strategic Petroleum Reserve but also in galvanizing greater international cooperation. In particular, the IEA regime should be expanded to include China, which now has a sizeable strategic petroleum reserve and is the world's second largest consumer and largest importer. Saudi Arabia's central position in the global oil market leaves U.S. consumers vulnerable to economic and political factors beyond American control.

With today's crippling of the U.S. shale oil industry—a goal Saudi Arabia championed that is undoubtedly showing signs of success—the potential for lasting effects on the U.S. economy is now evident in additional ways. And despite the incredible impact of technological advances in drilling activities on the United States' ability to decrease its dependence on oil imports, the capacity of OPEC nations and other NOCs to keep production levels artificially elevated and drive down prices shows the uneven playing field the United States faces in the global oil market. Alongside serious progress on demand reduction, strong resolve from the United States to work with allies to improve the fairness and freedom of the oil market could play a key role in insulating the nation from the detrimental effects of its reliance on oil.

Media Contact

For media inquiries please contact Alexander Adams, aadams@secureenergy.org and (202) 461-2374.