Regional Turmoil and Realignment

Middle East Conflicts and the New Geopolitics of Oil

By Amy Myers Jaffe and Jareer Elass*

The Arab Spring and subsequent regional conflicts is transforming the Middle East and has fueled rivalry for influence in the region among major regional powers, including mainly Saudi Arabia and Iran but also including such players as Qatar and the United Arab Emirates. As local borders and ruling institutions have become contested, so has control of the region's major oil and gas facilities. Initially an outgrowth of disunity inside Iraq, warring militias, Islamic State of Iraq and Syria (ISIS), Al Qaeda and traditional governments are increasingly focused on maintaining or gaining control of oil production and refining installations. Additionally, conflicts have spilled over into global oil markets as Saudi Arabia and its Gulf allies have initiated a market share war that has brought about a collapse in oil prices, intended in large measure to influence military and geopolitical outcomes on the ground in regional wars.

This paper examines how regional conflicts in the Middle East, including the Syrian civil war and the rise of ISIS, are shifting the geopolitics of oil and raising serious new risks that regional oil facilities will be considered both strategic assets and spoils of war not only in the greater battle for Syria and Iraq and the struggle against ISIS but also potentially in the wider struggle for geopolitical power across the entire region. Current diplomacy to resolve the conflict in Syria faces serious challenges but is increasingly imperative not only on humanitarian grounds but also as a key to preventing a continued destruction of major regional oil and gas infrastructure that could represent a major challenge to global energy security in the three to five year time frame.

Oil has shaped international conflict for many decades. According to one estimate, between 25% to 50% of interstate wars between 1973 and 2012 have oil-related linkages.[1] But the cyclical

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[1] Jeff D. Colgan, Petro Aggression: When Oil Causes War, Cambridge University Press, 2013

nature of oil's contribution to global conflict is not well understood. Not only are oil prices cyclical, but the geopolitics of oil is linked inexorably to the same cycle. High military spending and regional pathologies in the Middle East rise and fall with oil prices, perpetuating repeating patterns of military conflict, followed by oil supply crises, and accompanying global financial instability. Global financial contraction, then, in effect, drives oil prices into decline and promotes further internal regional instability, which in turn drives renewed military conflict that begins the cycle all over again. And, as global economies have become increasingly linked and contagion among financial products, currencies and commodities more virulent, oil's role in the global economy has become increasingly pernicious. In effect, the Middle East resource curse has become globalized.

Over the past four decades, oil prices have been governed by a combination of the real-economic business cycle (which has propelled and contracted demand and with it prices) and the boom and bust oil exploration and development (E & P) investment cycle that has followed this seminal cycle with a time lag. As economies expand during upswings in the business cycle, oil demand rises in parallel, often fueling fears that shortages will occur.[2] Oil prices then rise, often in combination with irrational exuberance and market bubbles.[3] Exceptionally high prices that follow the boom cycle then hinder continued economic acceleration. Commodity and asset market bubbles burst and recession ensues, limiting new demand for oil and thereby typically bringing oil prices into a collapse, until cheap energy and government financial market interventions yet again restore economic equilibrium and growth.

[2] Blake C. Clayton, Market Madness, Oxford University Press, 2015
[3] Ibid and El-Gamal, Mahmoud and Amy Myers Jaffe, Oil, Dollars, Debt and Crises: The Global Curse of Black Gold, Cambridge University Press, 2010

The oil cycle, with its alternating high and low oil price periods, has brought with it a similarly volatile economic cycle for the petro-states of the Middle East, whose governments have fluctuated repetitiously from gigantic cash surpluses of so-called “petrodollars” to burdensome budget deficits with surprising rapidity. Dubbed the resource curse, the massive influx of oil revenues during the commodities price upcycle discourages investment in sectors like manufacturing conducive to long term, stable growth. The influx of petro-dollars also fosters corruption and patronage, drives real estate and stock market bubbles, and provides near irresistible incentives for wasteful, government spending on white elephant projects and military expansion.

The geopolitical component of the oil mega-cycle can be particularly insidious. As oil capitals like Moscow, Riyadh, Abu Dhabi, Doha and Tehran reap massive profits and their treasuries overflow with a sudden influx of petrodollars not easily recycled into domestic economies, significant financial reserves become available for arms purchases and military adventurism, designed to protect the ruling class from both external threats (real and imagined) and internal challenges through robust internal security spending, ironically necessary for when economies dip with oil prices on the back end of the cycle. Military personnel as a percentage of Middle East employment is particularly high at 3 percent and military expenditures as a percentage of gross domestic product is also strikingly high (above 10% in Saudi Arabia, for example). The regional arms race that accompanies high oil prices boosts not only arsenals of key countries in the Middle East but also their sub-national proxies and even terrorist organizations that arise to challenge the status quo. The flow of weapons ironically driven by the oil price boom then increases the geopolitical risk to oil, once again laying the groundwork for a future rise in oil prices as fears grow that military conflict or terrorist threats will once again disrupt supplies.

In this way, as noted by historian Toby Craig Jones, "oil and war have become increasingly interconnected in the Middle East" with the United States not only "mired in the middle" but "its approach to oil has abetted the outcome."[4] In fact, the U.S. and the West unwittingly participate in propelling the geopolitical aspect of the oil cycle by recycling petrodollars via the sales of military equipment. In the mid-2000s, to reduce the pressure of the trade deficit on the U.S. dollar and to recycle some of the accumulating petro-dollars, the United States offered the Gulf Cooperation Council countries a $20 billion arms deal that now equips today's conflicts.[5]

The level of geopolitical conflict underlying the oil mega-cyclical this time around seems to be particularly dangerous coupled with the Arab Spring and dashed expectations of a new generation of youth from the Middle East. Not only have the borders and identity politics in the region blurred in a manner that will be hard to reconstitute but institutions and infrastructure is being rapidly destroyed all across the region. For oil resource development, a business that requires huge capital inflows, long lead times and complex engineering, the rising instability and devolution of government organizations in key Mideast countries bodes ill for future economic progress for the region and for continued oil market surpluses in the long run. Regardless of the promise of new oil and gas supplies from shale formations in North America and beyond, a third of global oil production is still sourced from the Middle East and North Africa. While this might be able to be reduced over time, for the next few years, the fate of Middle East oil will still have huge impacts on the global economy.

[4] For more details, see Toby Craig Jones, America, Oil and War in the Middle East, The Journal of American History, June 2012, Oxford University Press

[5] Mahmoud A. El Gamal and Amy Myers Jaffe, Oil, Dollars, Debt and Crises: The Global Curse of Black Gold, 2010 Cambridge University Press

A tour of military conflict around the Middle East today could be likened to the American children's game "Capture the Flag" when it comes to oil installations. As borders and ruling institutions have become contested, so has control of the region's major oil and gas facilities. Initially an outgrowth of disunity inside Iraq, the conflict over oil and gas fields and facilities is now accelerating across all of the territories where warring militias, ISIS, Al Qaeda and traditional governments are vying for influence, with important longer term consequences for global markets. Mideast oil and gas production capacity and surface facilities are increasingly being damaged in ways that will make them hard to repair, and export disruptions, once sporadic, are becoming a more permanent feature of the civil war landscape.

To date, the negative economic consequences of this destruction of energy infrastructure has been limited to the countries in question, as rising production from the United States has mainly replaced lost production in the Middle East. Moreover, the geopolitical dimension of the protracted conflicts has spilled over into global oil markets as Saudi Arabia and its Gulf allies have initiated a market share war that has brought about a collapse in oil prices intended in large measure to influence military and geopolitical outcomes on the ground in the regional wars.

The recent battles over oil fields in Iraq and Syria, extending also to Yemen and Libya, raise a serious new risk that regional oil facilities will be considered both strategic assets and spoils of war not only in the greater battle for Syria and Iraq and the struggle against ISIS but also potentially in the wider struggle for geopolitical power across the entire region. The longer these conflicts fester, the more infrastructures could potentially become at risk. Combined with lost investment in other parts of the world like Canada's oil sands and the Arctic due to low oil prices, the destruction of the oil sector in many locations around the Middle East may be laying the seeds for a future oil supply crunch in the three to five year time horizon. The level of damage

will be tied to the effectiveness of the United States and its allies to contain the spread of ISIS to new locations and the possibility of peaceful resolution to regional proxy wars among regional powers including Saudi Arabia and Iran.

Russia's buildup of troops in Syria in recent weeks adds yet another complication to the limited options facing the United States as it tries to build coalitions for a political transition in Syria. Since the United States might wind up with few levers to protect the various societies from the destruction of energy infrastructure in the region, Washington needs to avoid complacency about the global energy balance despite the current surplus.

Given the high risk that more oil and gas production and export infrastructure could be affected by escalating conflicts in the Middle East, the United States needs to position itself to fill any supply gaps that might emerge from the troubled region. To optimize the U.S.'s ability to maneuver, the country must stay the course in policies that will drive down demand, such as promoting adoption of advanced alternative fuel vehicles and stricter performance standards for cars and trucks. This year, increased economic activity has seen a 5 percent year on year growth in summer gasoline demand despite new efficiency standards for cars. Significant savings can take place as tightening corporate average efficiency standards kick in but loopholes should be eliminated to broaden momentum (with up to 2 to 3 million (barrels a day) b/d of oil demand potentially eliminated as Americans buy the new classes of automobiles). In addition, the U.S. government is currently outlining new performance standards for heavy duty trucks which carry 19 billion tons of freight a year. Stricter targets for efficiency of large trucks would make a major contribution to lowering U.S. oil use, as the freight sector is expected to constitute a key sector for growth in oil use out to 2040. Globally, ExxonMobil projects that total world energy demand from heavy duty vehicles will increase 65% by 2040, compared to 2010 levels.

With demand shrinking, the U.S. would then be well placed to lift the ban on crude oil exports and allow U.S. producers to reap the benefits of any supply hole that might come after 2016. U.S. exports strengthen our ties to important allies and trading partners and thereby enhance American power and influence. For example, U.S. exports could be an important strategic replacement to any lost Middle East supplies, much the way the U.S. served as an oil swing producer back in the 1960s, rendering an Arab oil boycott during the 1967 Arab-Israeli war infeasible. Our ability to serve as a source for critical swing energy supplies – oil and natural gas-- enhances our importance to our energy trading partners in other geopolitical and economic spheres and allows us to help our allies in times of market instability.[6] It would, for example, constrain Russia's ability to use its energy supplier role as a wedge between the United States and its European allies.

Sub-national Groups and Oil

Unlike past regional wars, like the 8-year Iran-Iraq war or Iraq's invasion of Kuwait, which involved mainly state-to-state conflict, this time around subnational groups, like ISIS, Al Qaeda and other local militias, are the ones focused on maintaining or gaining control of oil production and refining installations in contested areas. Their political impermanence has created unique problems, not the least of which is the inclination to use force to deny others access to the facilities by regional rivals or the devolved state government. To date, 1.905 million b/d of oil productive capacity in Yemen, Syria, Libya and Iraq has been lost in the last year due to violence and operational mismanagement. And, there is a lot more at stake, given that the Middle East and North African (MENA) region produces 32.5 million b/d, about a third of total world production.

[6] It is easy to imagine the expansion of American power if its natural gas companies could gear up to supply LNG to a European country cut off by Russia, such as happened in the winter of 2006. If the U.S. can become an energy supplier of last resort, its geopolitical importance will rise significantly along with its diplomatic freedom of movement.

Saudi Arabia's Eastern province, which has been targeted by ISIS, is the home to over 90% of the kingdom's oil production and the vast majority of world's spare oil production capacity.

The current pace of arms buying in the region gives little reason for optimism. Even as Saudi Arabia's oil revenues were declining precipitously towards the end of 2014, Saudi Arabia was increasing its military spending which exceeds 10% of GDP.[7] The United Arab Emirates military spending was similarly high at 3-4% of GDP and Qatar at 2-3%.[8] U.S. policy fed into this risky trend with President Obama promising new sales in arms to the Gulf Cooperation Council (GCC), in the aftermath of the historic P5+1 nuclear deal with Iran, including a $5 billion deal with Saudi Arabia for 600 Patriot missiles.[9] The United States is engaged in a diplomatic effort to try to reduce hostilities among key players and unify the effort to stop ISIS but so far, it has been slow going. Russia for its part seems to have rejected a diplomatic solution for the time being, committing more troops and material to the Assad regime in Syria.[10]

War and the Threat to Global Oil Supply

Our historical analysis of the impact of regional wars on long term oil market trends would suggest that the continuation of current conflicts could have major consequences for the global oil supply balance in the coming years. In a study with co-author Mahmoud El-Gamal, who utilizes Discrete Wavelet Transform (DWT) analysis to measure the effects of price and investment return variables on oil production at various frequencies, we found that wars in which

[7] "Saudi military spending rose 17 percent in 2014: study," *Reuters*, April 12, 2015 http://www.reuters.com/article/2015/04/12/us-yemen-security-saudi-spending-idUSKBN0N30WV20150412 ;also see SIPRI Fact Sheet April, 2015 http://books.sipri.org/product_info?c_product_id=496

[8] "Military Spending and Arms Sales in the Gulf," Anthony. H. Cordesman, Center for Strategic and International Studies, April 28, 2015 http://csis.org/publication/military-spending-and-arms-sales-gulf

[9] "US to speed up arms sales to Gulf after Iran deal: Kerry," *Agence-France Presse*, August 3, 2015 http://www.gulf-times.com/Qatar/178/details/449807/US-to-speed-up-arms-sales-to-Gulf-after-Iran-deal%3A-Kerry-

[10] New York Times September 5, 2015

oil production and export infrastructure is damaged or destroyed, can result in a significant discontinuity in oil market trends.[11] In other words, data shows that military conflicts over oil can result in significant disruption in oil capacity in the medium term and beyond, driving prices higher for some period of time until markets can adjust.

Analysis conducted by Peter Toft explores the link between intrastate conflict and oil supply disruptions. By recording oil production changes during the course of the 39 civil wars in oil producing countries between 1965 and 2007, Toft concludes that intrastate conflict intermittently leads to oil supply disruptions – around fifty percent of the time. [12] While Toft's assessment serves as a valuable indicator of the short-term impacts of civil war, it fails to take into account the long-term political and social changes that drive down oil production post factum. There is an indication that a protracted process of consolidating power that follows the transformation of internal politics can be far more harmful to oil sector investment – and thus production capacity – than simply the infrastructural damage incurred during the initial course of the conflict. Our analysis shows that war damaged facilities often remain offline for prolonged periods following conflict, if not for an indefinite timeframe.[13]

Militias throughout the Mideast have learned they can undermine the authority of existing political leadership in the region by overtaking oil facilities.[14] A prime example of this strategy has been amply demonstrated in Libya where what might have been a successful transitioning government fell into disarray as rebel factions grabbed and turned off key oil installations and denied access to eastern Libyan export ports. A more threatening trend line is the focus of the

[11] El-Gamal, Mahmoud and Amy Myers Jaffe, Oil Demand, Supply and Medium Term Prospects: A Wavelet-based Analysis, June 2013 available at www.
[12] Toft, P., "Intrastate Conflict in Oil Producing States: A Threat to Global Oil Supply? *Energy Policy*, August 2011
[13] El-Gamal op cit
[14] Jeff D. Colgan, Petro Aggression: When Oil Causes War, Cambridge University Press, 2013

ISIS on a similar strategy that is systematically destroying oil and gas production capacity in contested areas in Iraq, Syria, Yemen, and Libya.

There is a dual threat to regional oil facilities from both the rise of ISIS and escalating proxy wars around the Middle East. At risk is not just major production and export infrastructure in Iraq and Syria and Libya, but also along the borders of Iraq and Iran with Saudi Arabia, Qatar, the United Arab Emirates, and Kuwait, should the conflict spread more directly to its principal sponsors. ISIS has already attacked soft civilian targets, including Shia mosques, inside Saudi Arabia and Kuwait. Saudi Arabia has fortified its northern borders with Iraq with more military hardware and troops, while Iranian forces have moved into positions near the southern Iraqi oil fields, raising the risks of border skirmishes. The militarization of border areas so heavily populated with oil fields and export infrastructure brings with it unique risks, were the conflict to spread.

One of the most challenging aspects of the conflicts raging today across the Middle East is that there are several different ways escalation could put more oil infrastructure in harm's way. Jeff Colgan in his case study approach to how oil can fuel military conflict refers to several mechanisms at play in the region today: it is clear that "externalization of civil wars" in petro-states and "financing for insurgencies" are contributing to violence across the region.[15] And the oil revenue of Saudi Arabia, the United Arab Emirates, Qatar, Russia and Iran has to some degree insulated rulers from domestic opposition, potentially making them, as Colgan's and others' analysis would suggest, "more willing to engage in risky foreign policy adventurism."[16]

[15] Ibid
[16] Ibid and Michael Ross, The Oil Curse, Princeton University Press, 2012

But there is also a broader geostrategic element providing momentum in recent years as well. Russia has been a major arms supplier to Syria and has provided technical and diplomatic support for Iran's nuclear program and regional military expansion. At the same time, trying to play all sides since 2007, Russian President Vladimir Putin has also been offering Saudi Arabia a range of nuclear aid and military assistance. During a visit in 2008 then Saudi Foreign Minister, the late Prince Saud Al-Faisal, made it clear that any Saudi-Russian rapprochement had to include Moscow curtailing military cooperation with Iran and Syria, including dropping the sale of Russian S300 surface-to-air missiles systems to Tehran.[17] Russia spurned the Saudi conditions, scuttling the chances of greater cooperation on oil prices.

Evidence suggests that Russia may have found that its geopolitical interest is enhanced by its friendly relationship with Iran. By backing Iran militarily, Russia gained leverage with a regional proxy who could directly influence the security of Saudi Arabia and Qatar, U.S. allies and Russia's main competing energy suppliers. Russia's alliance with Iran, while somewhat tenuous, thus provides a counterweight to the threat that Saudi Arabia and Qatar can collude with the United States to weaken Moscow via an energy market share war. Russia is also motivated to support Iran to constrain the success of Sunni jihadist movements that might spread to its borders.[18]

By 2009, Saudi Arabia began hinting that an oil price war could be in the cards, should Moscow continue to threaten the kingdom's national security through its arms sales to Iran and other activities in the Middle East including support for the pro-Iranian government of Bashir Al-

[17] Elass, Jareer and Amy Myers Jaffe, The History and Politics of Russia's Relations with OPEC, working paper, James A. Baker III Institute for Public Policy, 2009, available at http://bakerinstitute.org/research/the-history-and-politics-of-russias-relations-with-opec/

[18] "New Alignments? The Geopolitics of Gas and Oil Cartels and the Changing Middle East." Songying Fang, Amy Myers Jaffe and Tec Loch-Temzelides. *Journal of Economics of Energy and Environmental Policy*. Volume 3. Number 1. January 24, 2014.

Assad of Syria. The Saudi threat was material to Russia's economic outlook, given the history of similar Saudi strategic moves against the Soviet Union and Iran. Saudi Arabia has successfully provided support to regional political movements, militias, or counter-insurgents that contributed to the Soviet failure in Afghanistan. Saudi Arabia's ability to flood oil markets at will has also played a role in various efforts, including lowering oil prices to pressure Iran during its eight year war with Iraq, to weaken the Soviet Union after its invasion of Afghanistan, and to ease the pressure on global markets ahead of the U.S. invasion of Iraq.[19]

Historically, the United States' close security relations with two major energy suppliers in the Mideast—Saudi Arabia (the world's largest oil exporter) and Qatar (the world's largest liquefied natural gas exporter)—have limited Russia's ability to achieve resource rent-seeking alliances in the Middle East. Perhaps more significantly, Moscow, then the U.S.S.R., was clearly hurt by oil price wars waged by Saudi Arabia in the mid-1980s and again in the late 1990s. Additionally, competition from Qatar in the gas market has significantly cut into Russia's economic interests in the past several years and is actively lessening Moscow's geopolitical influence.

In 2013, discouraged that the United States was not intervening in Syria and unhappy with Washington for pursuing a diplomatic agreement with Iran, Saudi Arabia approached Moscow to see whether a dialogue could convince the Kremlin to alter its support for the regimes in Damascus and Tehran. In one media account, Saudi Arabia offered a guarantee not to use a post-Assad Syria as a transportation hub for competing natural gas shipments to Europe if Russia would withdraw its current military support for the Syrian regime.[20] Other speculation assumed

[19] Ibid
[20] "Saudi Arabia offers Russia Deal for Backing off Assad Support," Reuters, August 7, 2013 http://www.huffingtonpost.com/2013/08/07/saudi-arabia-russia-assad_n_3719215.html?utm_hp_ref=tw. Also, see Ambrose Evans-Pritchard, "Saudis offer Russia secret oil deal if it drops Syria" The Telegraph, August 27, 2013 http://www.telegraph.co.uk/finance/newsbysector/energy/oilandgas/10266957/Saudi-offer.

that Riyadh would offer accommodation on oil price levels if Russia would be willing to trade its political stance on Syria for some sort of cooperation with the Saudis in energy markets. The initiative was a non-starter.

By 2014, Saudi Arabia was slashing prices to maintain market share. U.S. oil imports had been tumbling to their lowest levels in 16 years, with oil from the Organization of Petroleum Exporting Countries (OPEC) losing significant market share. By summer 2014, U.S. crude imports from Saudi Arabia lost about 440,000 b/d of market share, and state oil company Saudi Aramco responded by lowering its premium for Arab Light, Arab Medium and Arab Heavy crude oils relative to U.S. Gulf Coast benchmarks by 45 cents a barrel. The Saudi price reductions for U.S. customers were widely interpreted at the time as a sign that the Kingdom was starting to implement its price war for market share. The effort to defend U.S. sales came in the wake of similar moves earlier in the year when Saudi Arabia eased its premiums to Asia to ensure that the Kingdom could maintain its sales in the face of increased competition from other Mideast producers in Asia. By early 2015, oil prices had cratered to $50 a barrel.

Geopolitically, the fall in prices to $50 has been effective but not definitive. Cracks were apparent in the unity of the inner circle of Vladimir Putin as lower oil prices took their toll on the Russian economy but Russia did not alter its policies towards Syria and peace talks were not progressing. While Iran was beginning discussions about its nuclear program with the P5+1 powers, Tehran was still expanding its regional power through proxy wars, contributing support for an escalation in the Yemen war, which contributed to a significant rebound in oil prices to $60 a barrel, back from in the $40s. Oil movements through the Suez Canal have to traverse the Bab El-Mandeb chokepoint which borders Yemen and Djibouti. Roughly 3 to 4 million b/d of oil travels that route. While it is possible for shippers to bypass the Suez Canal, escalation of the

Yemen conflict unnerved oil markets for several reasons beyond fears of physical disruptions to tanker movements. Firstly, it showed that the conflict between Saudi Arabia and Iran continues to spread across the region, with potentially negative consequences for other regional production. Secondly, it showed that Russia and Iran were willing to use military force to counter Saudi efforts to lower oil prices.

The successful conclusion of the P5+1 nuclear deal negotiations with Iran paved the way for renewed efforts by the United States to broker a peace initiative in Syria. The Obama Administration worked overtime to get Mideast diplomacy off the ground to prove that the politically controversial Iranian deal could pave the way for a better Middle East.

A flurry of diplomatic activity included high level meetings between Russian and Saudi diplomats, Iran's foreign minister Javad Zarif and Syrian President Bashir al-Assad and Iranian and Lebanese officials. The blogosphere was buzzing with rumors, including one that Riyadh and Tehran might be able to agree on a formula that would restrict Hezbollah back to Lebanon, cordon Bashir al-Assad off to a limited titular role and begin serious negotiations for an inclusive political transition in Syria. One report on the deal purports an Iranian proposal that encompasses a cease fire and full-scale, free elections in Syria. Russia added to momentum to positive prognostication when Fyodor Lukyanov, chairman of a council that advises the Kremlin on foreign policy uttered a more lukewarm support for Assad in an interview with the New York Times, proclaiming "Saudi still believes that Assad should go, but now they are a little less sure that the alternative will be better…Russia still believes he should stay, but cannot ignore that the general situation is changing, that the strategic position of Syria is much worse now than before."

The possibility that all parties might consider a change in Syria led to speculation that Saudi Arabia and Iran might be able to work more cooperatively inside OPEC, with rumors that Saudi Arabia might be inclined to consider an OPEC floor price of $60 to $65 a barrel, were Iran's actions in Syria to demonstrate a serious commitment to a peace process and real progress is seen on the ground there.

While low oil prices have forced Moscow to take some draconian economic steps, so far it has not fundamentally produced the desired diplomatic capitulation. As predicted by Robert Blackwill and Meghan O'Sullivan, "… a weaker Russia will not necessarily mean a less challenging Russia…Russia could seek to secure its regional influence in more direct ways – even through the projection of military power."[21] Indeed, U.S. summer diplomatic efforts fizzled quickly by autumn, with Russia changing the facts on the ground by preparing to build a military base at Latakia and increasing the number of its military advisors in Syria in an effort to prevent a sudden collapse of the Assad regime from within or under attack by opposition forces. Russia perceived perhaps that the armed opposition that might get the upper hand would not guarantee their interests nor suit its preference for an Iranian bulwark against Sunni jihadis.[22] The Russian move seems to end for the time being the possibility of a political solution and lays some groundwork for a de facto partition of Syria in which the current regime will be cloistered in the West and along the areas adjacent to areas in Lebanon where Hizbollah is stationed. But some analysts suggest that Moscow is overly optimistic that ISIS and the non-ISIS opposition will battle each other in eastern parts of the country. Instead, it is suggested speculatively that the war in Afghanistan may prove instructive with all opposition forces still focusing in earnest on the

[21] Robert Dr. Blackwill and Meghan O'Sullivan, America's Energy Edge, Foreign Affairs, March/April 2014
[22] Middle East Briefing http://mebriefing.com/?p=1914

Assad camp, and saving energies against each other for a later day.[23] However, it is not clear whether Russia intends to satisfy the Saudis by combining in an assault to weaken ISIS and push Iran to the sidelines, or whether the Russian engagement on behalf of Assad is meant to hold Iran and Moscow in a position to use Syria to assert themselves against the Kingdom and restore oil prices via the uncertainty surrounding regional conflict. While the outcome in Syria is uncertain, the Russian move clearly complicates the landscape in the region, and leaves open the possibility of escalating violence. Pavel Baev and Jeremy Shapiro of Brookings suggest Russia's increased intervention may simply be designed to "establish a position of strength from which to bring Moscow back into the center of diplomacy over Syria,"[24] but are skeptical that Russia will be able to manage its participation in the conflict to reach a desired goal.

ISIS and Oil Conflict

The acceleration of conflict targeting of oil facilities is rooted in the history of repression of sectarian economic interests in key countries such as Iraq, Libya and Syria. In many cases, sectarian communities living in local oil producing regions did not receive an equitable share in wider national budgets during the reign of authoritarian regimes, and this reality has created larger problems in the post-Arab Spring environment. Disagreements over the divisions of state oil revenues have exacerbated ongoing sectarian conflict in not only Iraq, but in Libya and Syria.

In the case of Libya, long standing, historical grievances from citizens of eastern Libya about the sharing of oil revenues under strongman Muammar Qadaffi undermined the initial coalition government and put military competition for control of oil facilities at the center of the civil

[23] Ibid
[24] Pavel K. Baev and Jeremy Shapiro, How Russia and America make the same mistakes in Syria, http://www.brookings.edu/blogs/order-from-chaos/posts/2015/09/11-russia-america-same-mistakes-syria-baev-shapiro

conflict over power sharing. Without an effective Libyan government, a proxy war erupted in the country as rival nearby Arab states support competing leaders and militias (Qatar and Turkey backing the provisional government based in Tripoli and the United Arab Emirates and Egypt backing the opposition government and parliament situated in the eastern part of the country). The resulting chaos and violence created opportunity for extremist groups like Al Qaeda and ISIS who have been able to build their operations in the country and are currently engaged in a military campaign to seize control over Libyan oil infrastructure or deny it to competing factions. One theory suggests that depriving any potential Libyan unity government of oil wealth is aimed to prevent a new government from effectively fighting and defeating ISIS.[25]

Given the political instability and the fact that armed militias and air forces from both sides of the government struggle have targeted the country's oil fields and infrastructure, Libya's oil production has understandably fluctuated widely, with output currently at around 370,000 b/d, down from 1 million b/d produced in October 2014. Approximately 800,000 b/d of crude storage capacity at the eastern port of Es Sidr was demolished, leaving 3 million barrels, and both the ports at Es Sidr and Ras Lanuf have not been operating. This has resulted in the loss of some 600,000 b/d of export capacity.[26]

Armed forces affiliated with ISIS have conducted a string of attacks on energy facilities in central and eastern Libya, including on fields run by joint-ventures with Western companies.[27] One such attack occurred on March 6, when gunmen with allegiance to ISIS stormed the Ghani oil field, located in the prolific eastern Sirte Basin and operated by state oil firm Harouge Oil

[25] "ISIS Allies Try To Cut Off Libya's Oil Revenue," Jared Malsin, *Time*, March 16, 2015 http://time.com/3745911/isis-oil-libya/

[26] "Libya Battles Threats Internal and External," *Petroleum Intelligence Weekly*, Energy Intelligence Group, August 3, 2015

[27] "Libya Oil Field Attack Reveals ISIS Methods and Strategy," *Wall Street Journal*, March 20, 2015 http://blogs.wsj.com/frontiers/2015/03/20/libya-oil-field-attack-reveals-isis-methods-and-strategy

Operations in a joint venture with Canada's Suncor Energy, kidnapping at least nine foreign oil workers and reportedly beheading eight guards. Such attacks prompted Libya's National Oil Corp. (NOC) to declare force majeure at 11 fields operated by both Waha Oil. Co. and Mabruk Oil Operations, while state oil firm Zuetina Oil Co. announced it had evacuated personnel from its NC-74A license.[28] The most serious damage occurred at surface facilities at the Total-operated Mabruk field in the Sirte Basin.[29]

ISIS is also engaged in a turf battle in Yemen with the more established AQAP, and first made its presence known in the country this March by taking credit for suicide bombings at two Sanaa Shi'ite mosques in which 137 people were killed and another 357 wounded.[30] ISIS militants have said they were responsible for a string of bombings in Sanaa and elsewhere in the country during this spring and summer, including a car bomb that exploded outside of an Ismaili mosque in Sanaa on July 29 that killed four people and wounded another six.[31]

The deteriorating situation caused by the multitude of warring factions in Yemen has raised the specter of extremist groups capturing oil infrastructure. In mid-April, the Yemeni army ceded control of a group of oil fields to a coalition of armed tribes to protect the acreage from being captured by AQAP, which had made territorial gains in the area.[32] The proxy war being fought between Saudi Arabia and Iran in Yemen has caused the country's oil production to fall off

[28] "Libya's Oil Under Fire," *Energy Compass*, Energy Intelligence Group, March 13, 2015
[29] "Libya Battles Threats Internal and External," *Petroleum Intelligence Weekly*, Energy Intelligence Group, August 3, 2015

[30] "Suicide bombers kill 137 in Yemen mosque attacks," Mohammed Ghobari and Mohammed Mukhashaf, *Reuters*, March 20, 2015 http://www.reuters.com/article/2015/03/20/us-yemen-attack-bomb-idUSKBN0MG11J20150320
[31] "Islamic State claims car bomb in Yemen capital, four dead," *Reuters*, July 29, 2015 http://www.reuters.com/article/2015/07/29/us-yemen-security-bombing-idUSKCN0Q31TC20150729
[32] "Yemeni Army Tries to Safeguard Oil Fields as Qaeda Fighters Advance," Saeed al-Batati and David D. Kirkpatrick, *International New York Times*, April 17, 2015 http://www.nytimes.com/2015/04/18/world/middleeast/aid-agencies-increasingly-alarmed-by-yemen-crisis.html?_r=0

sharply, from capacity of 150,000 b/d in the first quarter of 2015 to around 16,000 b/d at present with production potentially totally stopping as storage becomes full and exports are embargoed.[33] The conflict has prompted Yemen LNG Co. to declare *force majeure*, halting output and exports from the country's single LNG facility.[34]

ISIS' Failure to Maintain Captured Oil Facilities in Iraq and Syria

When ISIS began its campaign in June 2014 to form an Islamic caliphate by seizing large swathes of land in northern Iraq and eastern Syria, of paramount interest to the group was gaining control of producing oil fields and capitalizing on existing oil smuggling operations out of Iraq and Syria to help fund the group's high operating costs. Initial high estimates of $1 to $3 million a day for ISIS' oil earnings were based on one time gain from "…draining down pipelines, storage tanks and pumping stations in northern Iraq."[35] But more recently, the extremist group is finding it cannot sustain oil production, both because it lacks the technical know-how and also because its fighters cannot stave off attacks to recapture key installations. Few people with strong technical expertise have remained in ISIS-controlled territory and the group's efforts to coerce skilled staff into staying by threatening the lives of their families or seizing the assets of engineers who have fled in hopes of prompting their return has proved

[33] "Yemen Oil Output Could Come to a Halt by August," *Energy Compass*, Energy Intelligence Group, June 23, 2015
[34] "Yemen's LNG Plant Halts Supply as Fighting Worsens Security," Aaron Clark and Chou Hui Hong, *Bloomberg*, April 13, 2015 http://www.bloomberg.com/news/articles/2015-04-14/yemen-lng-halts-production-as-fighting-worsens-security-at-plant
[35] International Energy Agency, Oil Market Report: 14 October 2014 https://www.iea.org/oilmarketreport/reports/2014/1014/

ineffective. ISIS has relied upon junior engineers who it has either pressured to stay on at their jobs or recruited.[36]

However, anything involving serious repair or more complex procedures, such as water injection at Syria's mature producing fields, is proving a challenge for ISIS. As of the summer of 2014, ISIS had control over half a dozen Syrian oilfields (al-Furat, al-Omar, and Deir ez-Zor) that prior to the war had a capacity of 114,000 b/d.[37] In September 2014, the U.K. risk management firm Maplecroft assessed that the militant group controlled six out of Syria's ten oil fields, notably the largest, the al-Omar field, and in conjunction with the oil fields it had seized in Iraq, was selling up to 80,000 b/d of oil through the black market.[38] The fields most affected by the Syrian crisis are the fields formerly operated by Royal Dutch Shell and France's Total in Deir ez-Zor, which collectively contributed around 90,000-100,000 b/d in 2011 and today appear to be averaging between 15,000-35,000 b/d.[39] Gulfsands' Block 26 and some of state oil firm Syria Petroleum Co.'s fields in northeastern Syria are controlled by the Kurds and the Syrian regime and these fields have reportedly not been damaged but are also not officially producing.[40]

Through the course of the summer of 2014, ISIS had captured six oil fields in northern Iraq—the Ajeel, Himrin, Ain Zalah, Safiyah, Batmah, and Qayara fields, which collectively had pre-war nameplate production capacity of 58,000 b/d. But by early September of 2014, ISIS had

[36] "ISIS grabs oil and gas fields in Syria and Iraq, but challenges remain," *The Daily Star*, July 26, 2014 http://www.dailystar.com.lb/News/Middle-East/2014/Jul-26/265188-isis-grabs-oil-and-gas-fields-in-syria-and-iraq-but-challenges-remain.ashx

[37] "Air Strikes Weaken Islamic State Oil Operations," *Petroleum Intelligence Weekly*, Energy Intelligence Group, October 6, 2014

[38] "Fueling Isis Inc., "Financial Times, September 21, 2014 http://www.ft.com/cms/s/2/34e874ac-3dad-11e4-b782-00144feabdc0.html#axzz3XTnhJXib

[39] "Iraq-Syria: Islamic State Oil Economy in Peril," *Energy Compass*, Energy Intelligence Group, March 6, 2015

[40] "Syria: Oil Bears Brunt of Air Assault on Islamists," *Energy Compass*, Energy Intelligence Group, October 3, 2014

relinquished three of those fields to Iraqi forces, leaving the Ajeel, Himrin and Qayara fields under the group's control, with production from these fields averaging less than 15,000 b/d.

The largest of the three remaining fields in ISIS' control was the 25,000 b/d capacity Ajeel field, located near Tikrit in the Salahuddin province. In early August of last year, the Iraqi government bombed and damaged the Ajeel control room[41], with field production reduced to just under 5,000 b/d.[42] Prior to Ajeel having been seized, the field had produced 25,000 b/d of crude that was transported to the Kirkuk refinery as well as 150 million cubic feet a day of natural gas that was piped to the Kirkuk power station. Fearful that their lack of technical expertise could inadvertently result in the gas being ignited, ISIS militants operating the field purposefully had been pumping lower volumes of oil.[43]

During the assault made in March of this year by Iraqi forces as they moved to reclaim Tikrit and the surrounding towns, ISIS soldiers abandoned the Ajeel field and set oil wells in the field on fire as a means to protect themselves from aerial attack by Iraqi military helicopters.[44] Firefighting teams from Iraqi state-owned National Oil Co. (NOC) extinguished those fires at Ajeel, in addition to well fires lit by ISIS rebels as they also rushed to leave the Himrin field, which was producing around 6,000 b/d.[45] Retreating ISIS soldiers relinquished Qayara, the last Iraqi oil field the extremist group had under its control, in late April, again setting oil wells on fire as they left. The heavy oil Qayara field, had pre-war capacity of around 5,000 b/d, but was

[41]International Energy Agency, Oil Market Report: 14 October 2014 https://www.iea.org/oilmarketreport/reports/2014/1014/
[42] "Iraq-Syria: Islamic State Oil Economy in Peril, " *Energy Compass*, Energy Intelligence Group, March 6, 2015
[43] "Islamic State torches oil field near Tikrit as militia advance," *Reuters*, March 6, 2015
[44] "Islamic State torches oil field near Tikrit as militia advance," *Reuters*, March 6, 2015
[45] "Iraq's NOC Extinguishes Himrin Oil Field Fires," *International Oil Daily*, Energy Intelligence Group, March 23, 2015

believed to be pumping at a mere 2,000 b/d,[46] and the field may have not been of great use to ISIS given that the crude quality from the field is similar to asphalt.[47]

The high value of Iraq's Baiji refinery to both ISIS and the Iraqi government cannot be overestimated. The 270,000 b/d capacity refinery located in the Anbar province has been the focus of intense fighting between ISIS militants and Iraqi government forces since June of last year and control of the refinery has exchanged hands several times. ISIS has held the town of Baiji for the past year and the town is strategically important because it lies on the road to ISIS-secured Mosul. The refinery, however, continues to be contested.

The Baiji refinery is critical to both sides as it is Iraq's largest refinery and processes one third of the country's crude output. Although Iraqi government forces had recaptured portions of the refinery in early June from ISIS militants and looked to be gaining total control over the facility in mid-June, a report on June 24 claimed that ISIS soldiers had taken control and were offering 460 Iraqi troops near the refinery safe passage to Irbil in Kurdistan if they surrendered their weapons. Iraqi Foreign Minister Hoshyar Zebari denied this report, insisting that Iraqi special forces soldiers were in control of the refinery.[48] The Baiji facility, which was relatively unscathed during fighting in 2014, has apparently experienced major damage during the latest struggle for ownership of it.[49]

Iran and Iraq: Source of Rising Oil Supply or Chimera?

[46] "Iraq-Syria: Islamic State Oil Economy in Peril, " *Energy Compass*, Energy Intelligence Group, March 6, 2015
[47] "Report: Islamic State Torches Qayara Oil Field," *International Oil Daily*, April 24, 2015
[48] "ISIL rebels control Baiji refinery in Iraq," *Aljazeera*, June 24, 2014
http://www.aljazeera.com/news/middleeast/2014/06/iraq-claims-control-baiji-oil-refinery-20146245333091848.html
[49] "Islamic State Takes Major Hits," *Oil Daily*, Energy Intelligence Group, June 18, 2015

Global oil markets are currently sanguine about the losses in oil productive capacity taking place across the Middle East, anticipating rising supplies from a variety of sources including U.S. shale, Iran and Iraq. Indeed, over the past five years, U.S. oil production has risen by over 4 million barrels a day to close to 9.4 million b/d currently, more than replacing lost production from the Middle East and North Africa that has averaged between 1.5 to 4 million b/d since the start of the Arab Spring. And Iraq's oil production has made steady gains despite the escalating war against the ISIS and wide-spread social unrest that has included major country-wide protests against corruption and electricity shortages. Iraq's production hit 4.2 million b/d this summer (including 235,000 b/d for direct crude burning for electricity), up significantly from year ago levels of 3.5 million b/d. Average Iraq crude oil exports from the southern fields around Basrah via the Persian Gulf are only slightly higher so far this year at 2.72 million b/d, up from 2.46 million b/d in 2014, with most of the balance of the increase coming from new independent exports by the Kurdish Regional Government (KRG). In recent months, despite the ongoing war with ISIS, the KRG has been able to maintain mastery of their region, generally ensure continued protection and use of its own pipeline export infrastructure to Turkey, and last year even expanded the territory under its control to include oil producing areas previously in dispute in and around Kirkuk.[50]

But the risks that escalating conflicts or sabotage could disrupt Iraqi Northern exports again in the future remain. Last year, Kurdish reinforcements managed to roll back ISIS incursions near the Mosul Dam region and keep its border areas near its oil industry uncontested.[51] The prospect of continued violence caused some Western oil companies to evacuate staff, raising the

[50] Keith Johnson, Revenge of the Kurds II, Foreign Policy, July 11, 2014, available at http://www.foreignpolicy.com/articles/2014/07/11/revenge_of_the_kurds_ii_iraq_kirkuk_oil_barzani_maliki
[51] "Oil firms evacuate staff from Kurdistan amid escalating conflict" International Oil Daily, August 7, 2014.

possibility of future interruptions to operations. Fields in eastern KRG remain in operation, including areas where key natural gas fields are located. Exports through the main oil pipeline to Turkey were cut off temporarily in March 2014 following a sabotage attack, and again this year sabotage and theft on the export line from Iraq to Turkey have risen with the outbreak of fighting between Turkey and the Kurdish insurgent group PKK. This summer, as the peace process broke down, PKK began bombing energy infrastructure all over eastern Turkey including the Iraq-Turkey pipeline.[52] The KRG's crude production capacity in 2014 was estimated at about 350,000 b/d, with roughly 140,000 b/d refined and consumed domestically. But now the KRG is also in control of the Bai Hassan and Avana fields at Kirkuk. KRG exports to Turkey have averaged 245,000 b/d in 2015 despite the PKK attacks. The KRG hopes to increase production to raise exports to a target 2 million b/d by 2019,[53] but this may prove ambitious given a slowdown in foreign investment in the face of regional instability. Oil export infrastructure remains at risk to any escalation in hostilities in the region.

Oil prices have also been under pressure in anticipation that post-sanctions, Iran will be able to significantly increase its oil production and exports. A recent report released by Harvard University's Belfer Center for Science and International Affairs on the "Energy Implications of a Nuclear Deal between the P5+1 and Iran" suggested that Iran might be able to supplement its current 2.8 million b/d production as sanctions are lifted by bringing on an additional 800,000 b/d of crude oil and condensate production in 2016. About 150,000 b/d of that would represent new oil production, with the rest achieved through improved technology for enhanced oil

[52] http://foreignpolicy.com/2015/07/30/kurdish-militants-strike-pipeline-deal-blow-to-fellow-kurds/
[53] "Oil pipeline boosts Kurds in stand-off with Baghdad," *Reuters*, October 17, 2013 http://uk.reuters.com/article/2013/10/17/iraq-kurds-pipeline-idUKL6N0I73KD20131017

recovery techniques, presumably with foreign assistance.[54] Last May, National Iranian Oil Company (NIOC) managing director Rokneddin Javadi told International Oil Daily at a conference in Kuala Lumpur that Iran's production would be able to pump an additional 1 million b/d within three to six months but that marketing the oil might be more of a challenge than producing it. Javadi said that all of Iran's fields would be able to be restored to production levels seen prior to the 2012 sanctions regime.

Sara Vakhshouri of SVB Energy International says that Iranian engineers are suggesting the resting of some of Iran's older fields shut in because of sanctions has "enabled reservoir pressures to increase and allow production to resume at high rates." She writes "Gas injection might also boost production in mature fields in 3 to 6 months." Vakhshouri's published estimate is that Iran could physically boost crude oil production by 500,000 b/d to 700,000 b/d within three months, and 800,000 b/d within six. Iran is currently said to be producing 2.8 million b/d of crude oil and 679,000 b/d of condensates. Estimates are that domestic refining capacity totals about 1.8 million b/d, suggesting exports now range around 1 million b/d. Embedded in official Iranian estimates and other optimistic ones like Vakhshouri's is belief that Iran will be successful in bringing on new fields along the Iraqi border and achieve at least 200,000 b/d to 300,000 b/d of production from new fields quickly and then be able to accelerate at least another 200,000 b/d or more from enhanced oil recovery at older fields, bringing 2016 production increases to at least 800,000 b/d of liquids, of which 600,000 b/d could be new or restored crude oil output and 200,000 b/d condensates. By 2020, an additional 1.2 million b/d of liquids is projected, allowing Iran to get to total production of 5.5 million b/d including condensates.

[54] "Energy Implications of a Nuclear Deal between the P5+1 and Iran" available at http://belfercenter.ksg.harvard.edu/publication/25538/energy_implications_of_a_nuclear_deal_between_the_p51_and_iran.html?breadcrumb=%2Fproject%2F68%2Fgeopolitics_of_energy_project%3Fpage_id%3D359

Vakhshouri and others have noted that Iran's industry has made strong progress on its own without international assistance. Iranian officials say that they have reduced production mainly by stopping natural gas reinjection programs at key fields. They suggest that a resumption of injection can quickly restore production while new fields near the Iraqi border are also coming on line this year. Still boasting of domestic industry competencies bely at least some problems that have made it to the public domain. Chinese upstream Iranian oil field projects have faced massive delays and the massive South Pars project has also had its own engineering difficulties including a very public embarrassment of a major platform sinking into the ocean.

WoodMackensie Consultants, known for their field by field bottom up approach, is touting far more conservative numbers of a growth in crude oil exports of only 120,000 b/d by the end of this year and a boost of an additional 260,000 b/d by end-2016, based on views that Iran's geologically complex, mature fields face a decline rate of 8 to 11% a year that is hard to reverse quickly. Citibank is projecting that Iran will try to surge its production immediately upon the lifting of sanctions but will have difficulty sustaining more than a 500,000 b/d incremental increase in 2016 and likely closer to 250,000 b/d average.

To date, Iran has focused its oil capacity expansion efforts on its West Karun fields, which include the giant multi-billion barrel North and South Azadegan and Yadavaran fields, which are currently producing about between 50,000 to 80,000 b/d and targeted to increase slightly in the coming months. Both fields were developed under buy back agreements with Chinese NOCs but have experienced substantial setbacks and delays. Iran ended CNPC's contract for South Azadegan last year. Other fields on the Iraqi border are also targeted such as the Yaran field now

producing 40,000 b/d. The Darquain field, which requires water and gas injections and was a project initiated with help from Italy's ENI is another field on the Iraqi border that Iran is counting on to contribute to higher output as well as Jofier.

Part of the optimism about Iran's oil potential focuses on the many Western and Eastern oil companies gathering to negotiate for the new deals under the proposed "Iran Petroleum Contract" (IPC), a new service risk integrated exploration, development and production contract that is supposedly going to allow international companies to "book reserves." The large reserve potential in Iran is an attractive enticement for majors like ENI-Agip and BP who need a quick fix to their future reserve additions and believe that they could potentially return to fields they are familiar with and think have potential to be repaired quickly with Western intervention. The problem is that this kind of "afraid to miss out" reserve management, reserve replacement fantasy deals have lured these companies before to gloss over enormous technical and geological barriers, ending in write downs or worse, in the Caspian, Iraq, Venezuela and Saudi Arabia's gas initiative.

Past history has shown that oil fields are harder to rehabilitate quickly when they have been shut-in, regardless of the promise of "Western technology and know-how." Restoration of lost capacity in Libya by European firms was slow going in the 1990s and 2000s. And the concept that shutting Iranian fields is "enhancing" their pressure may be wishful thinking. When Saudi Arabia de-mothballing of its giant, less complex fields in the 1980s, it encountered the stark reality that resting fields leads to field pressure problems and lost capacity, not pressure enhancement.

Iraq's own oil field expansion program was slow to recover in the first year after sanctions, and, for years after, companies operating in Southern Iraq have been hampered by many factors, including bureaucratic difficulties getting needed equipment procured and into the country, a problem more than likely to plague firms working with Iran's massive bureaucracy as well. Any return to Iran for upstream work will also have to overcome Iran's many local content provisions at a time when the lifting of sanctions will be complex and confusing. U.S. secondary sanctions related to terrorism and human rights will still be in effect and the Iranian Revolutionary Guard Corps (IRGC), which has several commercial enterprises in the Iranian oil sector, is deemed a terrorist organization by the U.S. The United States has also been aggressive in its prosecutions of the foreign corrupt practices act (FCPAC) in recent years – as has its European counterparts- and European firms such as Total and Statoil have already run amok of Iranian corruption over the last decade.

In the late 1990s/early 2000s, Iran needed 100 trillion cubic feet of natural gas (tcf) for field rehabilitation and the needs for future expansion will be higher still. Water encroachment and pressure problems plagued major fields such as Marun, Karanj, and Ahwaz, Parsi. Gachsaran and Bibi Hakimeh fields also depend on gas injection EOR. Iran has announced that it intends to increase gas injection to 330-mcm/d by end-2016 and that the gas is available from the Iranian domestic natural gas grid from domestic associated natural gas production. However, in past years, the country faced severe natural gas shortages and was banking on increases in foreign investment in the North and South Pars projects. Natural gas use by consumers has also been rising with the government's "resiliency" program for replacing gasoline and diesel with compressed natural gas (CNG) for vehicles and higher use in the residential sector.

Thus, it remains unclear how easily Iran will be able to access the natural gas it needs to drive a large program of enhanced oil recovery which relies on large quantities of natural gas for injection. Moreover, Iran's fields have suffered strain and damage over the years and may take longer to restore and expand than expected, as has been the case in other countries like Iraq and Libya. Bureaucratic barriers may also slow the return of foreign investment, reducing the chances of a quick turnaround with the advanced technologies needed to enhance existing Iranian equipment and capacities.

In summary, although rising exports from Iraq and Iran may fill any supply gap created by the ongoing conflicts across the Middle East in the coming years, these supplies themselves are also subject to similar risks, leaving markets with a higher level of uncertainty for the future than may be currently recognized.

Implications for US Strategy

As conflicts continue to simmer in the Middle East, militias and extremist groups will aim to capture oil fields and infrastructure for their territorial domain. This turn of events is a serious challenge to stability across the Middle East and for the global economy.

Years of conflict have taken their toll on the state of the oil industries across the Middle East. Take the case of Iran, for example: Iran's oil production averaged around 6 million b/d in the late 1970s. Following the Iranian Revolutions of 1978-1979, Iranian output fell to 1.5 million b/d; three decades later, the country's oil output capacity stands at less than 60% of its pre-revolutionary levels. In Nigeria, regime change prompted a similar outcome: the Biafran civil

war in 1967 sank oil production by around 40%.[55] During the transition from military rule in 1979, oil production dropped 30%, continuing its decline until 1983.[56] In Libya, the historical links between regime change and oil output offer a prelude for today's revolutionary state: Muammar Qaddafi's ascension to power in 1969 led to a rapid evaporation of foreign investment and operations in the oil sector. By 1975, the previous regime's output average of 3.2 million b/d had sunk over fifty percent; and by 1985, oil production had dropped to a mere 430,000 b/d.

The parties to the conflict in Syria may be so numerous and the dynamic fueling conflict across the wider region so complex, it is hard to see how the United States would be able to influence the outcomes it might consider desirable. It has been argued that "complementary international missions to degrade ISIS from the air, and train and equip the group's local adversaries," are the key to the needed ingredients to containment.[57]

But the United States can prepare itself for the energy consequences that might come of continued violence and destruction in the Middle East. The United States has hampered its potentially enhanced international stature by keeping its own oil surplus sheathed. U.S. tight oil could be a greater benefit to U.S. allies and free markets, were the Congress to lift the 40 year old export ban.

The United States can do much more to use its advantageous energy position to enhance its global leadership role. As Blackwill and O'Sullivan note, the U.S. shale boom provides the U.S. with the tools to "sharpen the instruments of U.S. statecraft."[58] Our current policies of limiting natural gas exports and banning crude oil exports must be considered in the context of the U.S.

[55] Toft
[56] "Nigeria: Overview/Data," *U.S. Energy Information Administration*. July 14, 2010, < http://www.eia.gov/countries/country-data.cfm?fips=NI#pet>
[57] Fromson, James and Steven Simon, ISIS: The Dubious Paradise of Apocalypse Now, Survival, May 2015
[58] Blackwill Op cit

international leadership role and not just in the confines of U.S. domestic political priorities. In the global context, hoarding energy supplies inside our borders sends the message to other countries that they too should be hoarding their energy. Such attitudes were precisely what worsened the economic damage to the global economy during the 1979 oil crisis. The United States is bound by our membership in the International Energy Agency (IEA) emergency stockpile system to share our energy in times of emergency or major disruption, so it seems all the more ludicrous that our hoarding of supplies will be limited to periods where energy supply is sufficient.

Still, the U.S. oil bounty is not a solution unto itself, as it too is vulnerable to the globalized oil cycle and associated geopolitical fallout. The U.S. must also sustain the current tendency to lower its oil demand, thereby ameliorating the global resource curse by attenuating the cyclical rise in fuel requirements and decoupling economic growth from customary demand pressures. By lowering the amount of oil that might be needed in three to five years through efficiency and substitution, the U.S. could thereby cushion itself and the global economy from the next supply gap likely to come in the next few years if conflicts in the Middle East continue to escalate.

As U.S. Energy Information Administration (EIA) analysts Shirley Neff and Margaret Coleman show in the lead analysis article in the Special Issue of Energy Strategy Reviews on "U.S. Energy Independence: Present and Emerging Issues", U.S. demand-side management policies are finally paying off, with U.S. oil consumption falling almost 10 percent between 2005 and 2013 and expected to find deeper reductions in the coming decades. U.S. oil demand is expected to decline by more than 20 to 30 percent in the next twenty years, Neff and Coleman argue, demonstrating the importance of well-designed transportation policies. There is no question that technological innovation and new investment strategies by U.S. independent oil companies has

brought about a renaissance in U.S. domestic oil and gas production, creating a prolific U.S. energy supply outlook. But without government intervention to curb our appetite for oil, this rising production might have done little more than meet increases in incremental demand.

The consequence of the U.S. oil export ban has generally been the accumulation of high, surplus crude oil inventories that tend to depress U.S. crude oil prices relative to global markets. The extra revenue that might come from export access would both benefit the domestic U.S. economy but also reduce at the margins some oil that might have gotten shut-in because of negative break-even economics. If and when the destruction of oil production capacity in the Middle East contributes to a tightening market, allies such as Mexico and Europe will be eager to have access to U.S. condensates and tight oil. Such energy trade strengthens our ties to important allies and trading partners and thereby enhances American power and influence.