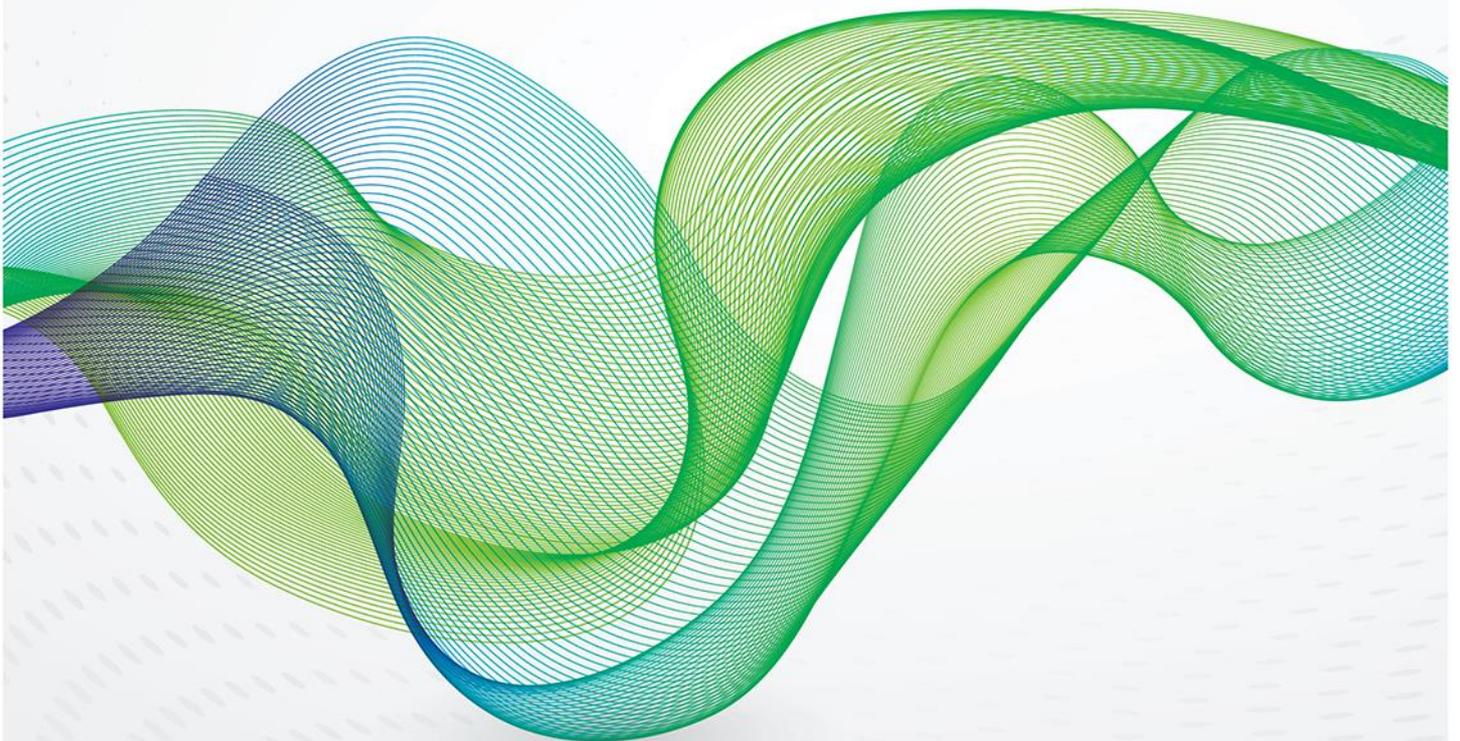




THE OXFORD
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The Soleimani Effect: A Game-Changer for Iraqi Crude Dynamics?





1. The changing geopolitical landscape for Iraq's energy sector

Much ink has been spilled over the past week assessing the current confrontation between the US and Iran following the US-ordered airstrike against Qassem Soleimani, commander of the Iranian Revolutionary Guards' Quds force and Abu Mahdi al-Muhandis, deputy head of Iraq's Popular Mobilisation Forces (PMF). While the US assassination prompted a spike in oil prices – with front-month Brent prices rising to above \$70/bbl – the risk premium has now faded, with the market having read Iran's latest missile attack on military bases in Western Iraq and Erbil as a face-saving reprisal without crossing US redlines (as the attack was telegraphed in advance).¹ Likewise, President Donald Trump's decision to respond economically (via further sanctions on Iran), rather than militarily, has also led Brent and Dubai front-month prices to retreat.

While the future path of US-Iran confrontation remains uncertain, one immediate casualty was Iraq – OPEC's second largest producer and a key source of oil supply growth out to 2030.

This has raised questions whether recent events may prove a geopolitical game-changer for Iraq's oil outlook. There are several reasons for this:

- Tehran's response last week to the US' attack is unlikely to be its last, cast only as a 'slap in the face' to Washington. However, Tehran is not seeking outright direct confrontation with the US. The crystallisation of new 'red lines' by Trump is likely to deter Iran from further raising the stakes via a repeat of last year's attack on oil infrastructure or a shutdown of the Strait of Hormuz.
- While Iran has the option of intensifying campaigns in either Yemen or Lebanon, this involves the risk of direct confrontation with US-backed allies – primarily Saudi Arabia and Israel. Rather, Iraq is likely to be the centre of focus for Tehran. Iraq is the most cost-effective strategy to expand control and continue its 'shadow war' with the US given its intelligence footprint and political assets. Only weeks ago, Iran's influence was under threat by Iraq's protest movement – a key player driving Iraq's government formation process (e.g. Barham Salih, Iraq's President, rejected two formal Iran-backed candidates for interim PM as they were unacceptable to the protestors, attacks on Iranian offices etc.). Tehran has every interest to whip up anti-US sentiment and further de-legitimise the protest movement in a bid to strengthen its hand.
- By attacking Soleimani on Iraqi soil, President Trump has prioritised a tactical gain over Washington's relationship with Baghdad. Following the attack, Iraq's parliament voted to expel US forces.² Despite debate around the constitutional niceties and legality of the vote, political momentum for a US withdrawal is growing. With Iraqi forces still requiring US-led training to counter the so called the Islamic State (State), there remains a risk that the group – who have ramped up attacks in recent weeks in Iraq – could return.
- Often ignored but just as important, the US assassinated Abu Mahdi al-Muhandis, deputy head of the PMF. His killing has inspired significant anti-US sentiment among the various Shi'ite groups. While a number of factions within the PMF umbrella have promised attacks against US interests in Iraq, this may prove unlikely. His role in engineering unity among various Shi'ite factions within Iraq's PMF was critical and a consensus is emerging that inter-Shi'ite conflict within the PMF is likely to intensify in the coming months as a result of the leadership vacuum.³ It will be in Iran's interests to ensure that its proxy groups – Badr Organisation, Kataeb Hezbollah and Asaib Ahl al-Haq – retain influence, particularly over federal revenues and the future direction of ongoing government formation.

¹ According to US officials, intelligence sources forewarned the US of the attack. See: https://www.washingtonpost.com/national-security/us-officials-knew-iranian-missiles-were-coming-hours-in-advance/2020/01/08/b6297b4c-3235-11ea-a053-dc6d944ba776_story.html.

² It is important to note that US troops (~5-6,000) have been in Iraq since 2014 at the request of Iraq's executive branch to counter-ISIS (US occupation forces left in 2011).

³ Thanks to Ahmed Tabaqchali and Fanar Haddad for this point.

- Under the current US policy of ‘maximum pressure’, Iraq is key to Iran’s political survival: not only is Iraq a major trading partner of Iran (estimated at ~\$12-13bn) but it is also an ‘economic lung’ to offset the impact of sanctions. Tehran has used Iraq to gain access to US dollars (via Iraqi Central Bank auctions); export natural gas; and as a logistical gateway to support Syria’s regime and Lebanon’s Hezbollah. Washington is currently reviewing its decision (due in mid-February) whether to renew a sanctions waiver allowing Iraq to import Iranian gas.
- While President Trump has threatened severe sanctions on Iraq if were to force a US withdrawal, sanctions on Iraqi oil sales are highly unlikely. Despite this, other risks remain: aside from the US waiver on imports of Iranian gas, the US Federal Reserve and Treasury Department have the option to cut USD flows to Iraq’s Central Bank, as US currency shipments⁴ could end up in the hands of sanctioned Iranian and Iraqi groups (via local banks). Moreover, sanctions often have an escalatory logic: the US has already sanctioned Iranian proxies in Iraq. The prospect of Iran-backed political groups capturing further state institutions (with access to USD) could lead to further Executive Orders (EO) and US OFAC investigations.

It is important to note that events remain fast-moving and key decisions such as potential sanctions on Iraq, Iran’s policy in the aftermath of the killing of Qassem Soleimani, and the US withdrawal from Iraq continue to evolve. Likewise, it is important to stress that Iraq’s post-2009 oil production growth took place against the backdrop of major challenges (challenging investment landscape, fiscal crisis, major protests, and a volatile security and geopolitical environment). Moreover, Iraq’s fiscal position has strengthened due to higher exports and higher oil prices helping support IOC payments and a massive public wage bill. In this light, a sober assessment of current developments needs to consider how the current crisis interacts with other pre-existing risks to Iraq’s outlook, primarily:

- Any structural change to the US-Iraq relationship triggering investment withdrawals (and imposition of sanctions/removal of waivers);
- A new threat landscape triggered by the re-emergence of ISIS and/or attacks against US interests in Iraq;
- Whether the crisis will now deepen and delay the process of government formation. This includes the prospect of a semi-permanent standoff between Iraq’s ‘street’ and a more influential Iranian role in Iraq’s political system.

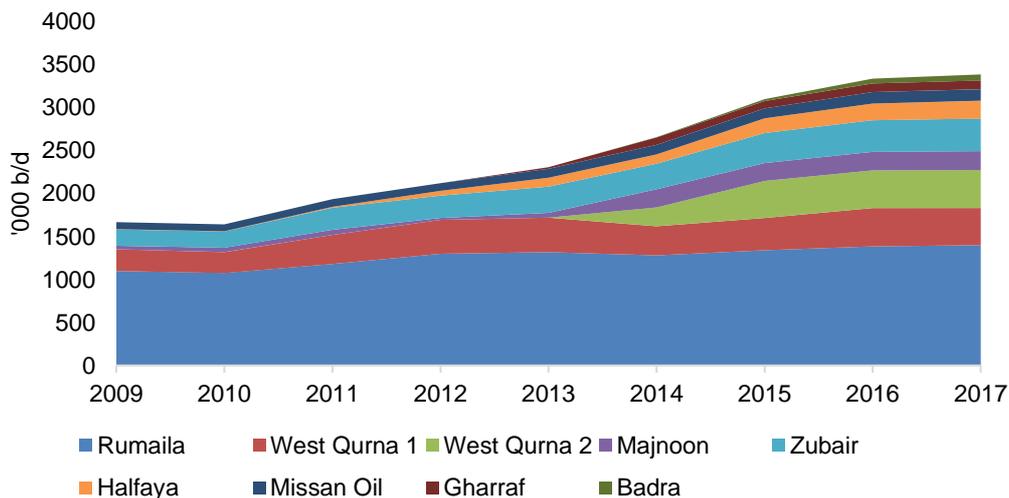
This comment is an attempt to shed some light on how the above may interact with Iraqi oil sector developments.

⁴ USD are flown to Iraq after leaving US Fed facility. USD are moved to ICB and sold in daily auctions.

2. Iraq's oil outlook has become more challenging

It has now been just over a decade since Iraq opened its super-giant fields to international investment. Since then, International Oil Companies (IOCs) – operating under Technical Service Contracts (TSCs) – have been the main contributors to Iraqi liquids growth, adding 300,000 b/d year-on-year from 2010-15 and around 185,000 b/d in 2016 and 2017 alone. From a global liquids perspective, Iraq was the second largest source of oil supply growth from 2010-16 (after the United States).

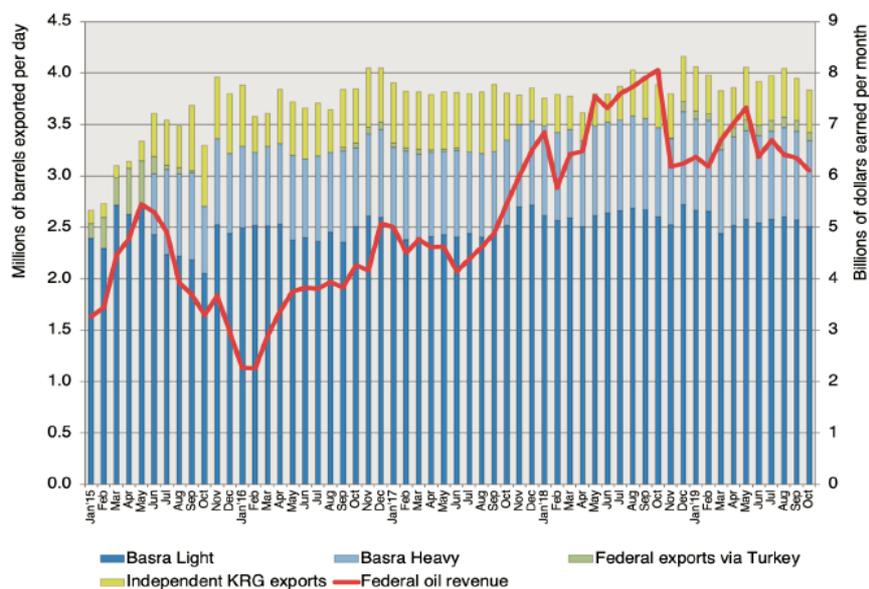
Figure 1: Iraq IOC fields growth, 2009 – 2017



Source: Author's analysis, Companies.

This supply growth – while taking place against the backdrop of the 2014 oil price crash and a volatile (geo)political climate – cemented Iraq's position as OPEC's second largest producer, with federal production capacity now just under 5 mb/d. Southern exports have also ramped up significantly, from 1.7m b/d in 2007 to an average of 3.5m b/d in 2019.

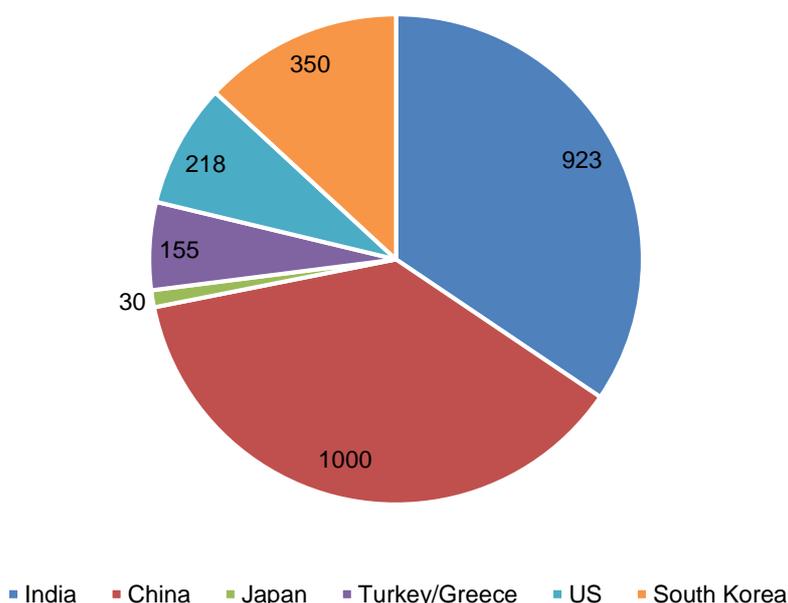
Figure 2: Iraq crude exports, Jan 2015 – Oct 2019



Source: Iraq oil report.

Over the years, Iraq has expanded its market share in Asia, particularly India where it is top supplier (due to attractive OSPs and India's complex refinery capacity). Likewise, Iraq's SOMO has increased market share in China where exports rose by 20% in 2018 and reached 1.15m b/d in July 2019. The strategic importance of Iraqi crude for oil markets has grown in recent years given shortages of medium-heavy crude in global balances due to US sanctions on Iran and Venezuela and OPEC cuts.

Figure 3: Basra crude key destinations in December 2019 (kb/d)



Source: Bloomberg, Author.

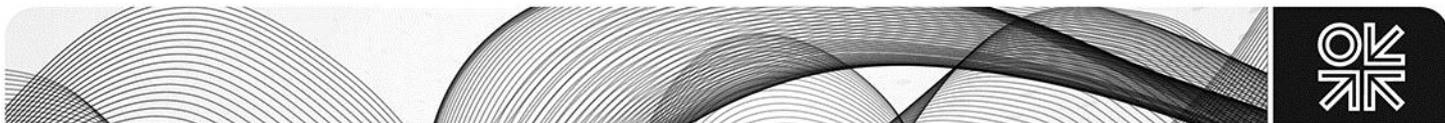
Infrastructural challenges

A key feature of Iraq's oil industry is the need for significant midstream investment (which has been outpaced by upstream growth). While a number of tie-in pipelines have been built in the past few years to transport crude from southern oil fields to the Fao tank farm for export, onshore bottlenecks continue within the sector. At present, Iraq's southern export infrastructure is made up of the 1.7 mb/d Basra Oil Terminal (ABOT) and a network of subsea pipelines connecting four Single Point Mooring (SPMs) systems, each with a design capacity of 900,000 b/d.

At present, not all the SPMs are being utilised due to insufficient onshore pumping capacity; however, pumping capacity upgrades and the planned completion in Q320 of a new 1 mb/d subsea pipeline will help move crude from Fao to North ABOT and SPM-4. Moreover, BP and ENI are working on the construction of an additional two subsea pipelines (Sealine 4 and 5) planned to be financed through their existing TSC contracts.

Other major midstream plans by Iraq include:

- Construction of a new pipeline from Tuba tank farm to Fao to accommodate growth from West-Qurna 2;
- Expansion of storage tank capacity at Fao, Zubair and Tuba. With current operating storage capacity of around 12 million barrels, further increases are planned at Fao to both accommodate growth and provide a buffer during bad weather;
- Increasing onshore pumping capacity at Fao to increase flows to offshore export facilities; and



- Reaching a deal with ExxonMobil and its partners to fast-track the multi-billion-dollar Southern Iraq Integrated Project (SIIP) – a mega-project designed to upgrade infrastructure in Southern Iraq, construct a water injection project and expand Iraq's southern storage capacity.

Negotiations over SIIP are now at high risk of either further delay or outright termination. Even prior to last week's events, ExxonMobil negotiations with Iraq's Oil Ministry (MoO) were complicated by differences over the financing of the project, particularly the cost recovery mechanism and remuneration terms. Even assuming no major shift in the US-Iraq relationship, the recent crisis has likely delayed Iraq's government formation process, further frustrating any chances of a deal on the mega-project.

Growing cost and complexity of field operations

Over the past decade, Iraq's upstream sector has attracted ~\$70bn in capex, mostly following Iraq's first and second bid round. Iraq's next phase of production growth and oil sector development is set to prove more expensive and complex. 2019 highlighted the growing cost and complexity of field operations in Iraq's upstream: a growing number of fields entering secondary recovery; the need to source water to sustain reservoir pressure; and the growing cost of integrating gas (processing/treatment) and power operations at fields – a signal that Iraq's next chapter of production growth will prove more expensive.

A snapshot of these challenges was evident at the BP-operated Rumaila field. 2019 saw output at the field reach approximately 1.5 mb/d (representing around 30% of total Iraqi crude production). With a field decline rate of around 17%, well management is becoming more complex as operational focus shifts from the productive northern Main Pay reservoir (supported by a natural aquifer) to the Mishrif (24-28° API, 4% sulphur), which suffers from weak aquifer support.

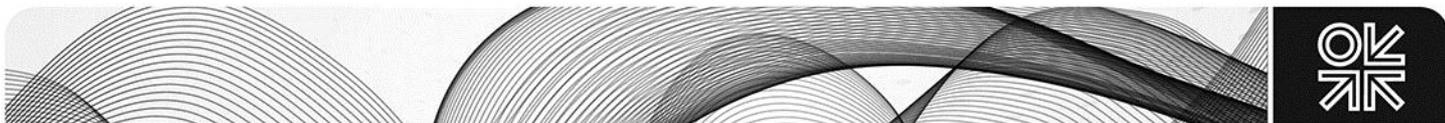
The growing cost and complexity of Iraq's next chapter of production growth highlights the need for IOC investors with scale, capital and technical prowess. One casualty of the crisis may be Chevron. The IOC – an operator in KRG – has been seeking to gain operator status in southern Iraq's Majnoon field, previously operated by Shell (who exited the asset in mid-2018) due to poor fiscal terms.

Iraq's Basra Oil Company (BOC) awarded two management contracts to manage the field toward the end of 2018 – one to KBR and another to Anton Oilfield Services Group (a private Chinese company made up of ex-CNPC executives). Throughout 2019, BOC had been providing Chevron technical data to conduct reservoir simulation and modelling of the field, helping to improve BOC's understanding of the asset. It remains to be seen whether Chevron will apply a 'wait-and-see' approach to resuming its business development efforts in Southern Iraq or if it will completely abandon efforts.

Again, Iraq's poor fiscal terms and strategic paralysis at Iraq's Petroleum and Contract Licensing Division (PCLD) has deterred investment flows for several years – however, a structural shift to Iraq's geopolitical outlook adds a major risk premium to an already set of uncompetitive fiscal terms. When IOCs entered Iraq over a decade ago, the country's low-cost oil production and high level of reserves presented a major comparative advantage to attract capital flows; despite the harsh fiscal terms, IOCs accepted small per-barrel remuneration fees as part of the TSCs on the assumption that cost-recovery would be swift, helping offset project financing risk and helping keep project Internal Rates of Return (IRR) within an acceptable rangebound.

Iraq's next chapter of upstream investment – barring the more complex political landscape – will also take place against the backdrop of a rapid period of cost deflation in the oil industry since 2015 which has flattened the industry's cost curve, eroding some of Iraq's comparative advantage as a low-cost producer. A more competitive pool of global capital and offers of more attractive returns in other resource plays is a reminder that Iraq's terms need to be more competitive.

While PCLD did introduce a more competitive fiscal regime as part of Iraq's 5th licensing round – introducing a sliding cost recovery linked to oil prices and royalty rate – the contract regime remains unratified.



Indeed, poor fiscal terms and IOC portfolio adjustments following the oil price crash of 2014 have already led to the exit of one major IOC (Shell in mid-2018). Given that Iraq is non-core to IOC portfolios, any major structural shift to the US position in Iraq could further undermine IOC confidence in the long-term. While Iraq may fail to attract any new IOC entrants over the next decade, it is possible that Asian NOCs – with much lower investment hurdle rates – will seek to expand their upstream footprint in the country, particularly given Asia’s downstream investment schedule and Iraq’s contribution to medium-heavy crude balances.

The growing need for water for reservoir injection

Iraq is currently undergoing a transition from primary to secondary oil recovery: despite its significant resource base, approximately 80% of Iraq’s producing fields have ultimate recovery factors in the range of 15-40%.⁵ A growing consensus is forming among operators that secondary oil recovery methods – whereby water is injected into oil formations to sustain reservoir pressure – will be key to the next phase of Iraqi production growth. While gas injection is a potential method for maintaining reservoir pressure, Iraq’s ongoing challenge of gas flaring and the call on gas for Iraq’s power sector undermine this option.

A key mega-project - often touted as the key to unlocking Iraqi production growth – is the Common Seawater Supply Project (CSSP), a multi-phased project aimed at processing seawater from the Gulf and transporting it to southern fields. Multiple conflicts between Iraq’s government and CSSP investors have taken place over the past few years, primarily surrounding the financing, scale and contractual terms of the mega-project.

Iraq currently needs approximately 1.3-1.5 barrels of injected water for every barrel of oil extracted. 2018 water injection rates were at around 3.5-4 mb/d of water. This is sufficient to support current production capacity levels of around 5 mb/d. While CSSP may be even further delayed – undermining further capacity gains – additional gains can be made by:

- Expanding capacity at the Qarmat Ali Water Treatment facility from 1.3 mb/d to 2.6 mb/d to support injection rates at Rumaila and Zubair;
- Expanding the use of industrial water and increasing water recycling.

Despite this, Iraq cannot afford any further sustained disruption to its long-term investment schedule.

3. Gas imports from Iran: The most immediate potential casualty?

One immediate potential short-term casualty of current US-Iran tensions lies in Iraq’s gas sector. Gas has been playing a growing role in Iraq’s energy mix as oil production has increased. The failure to capture and process associated gas over the years has led to high levels of gas flaring - which has increased from 12 bcm/y in 2011 to 16 bcm/y in 2018.

The lack of fuel availability for Iraq’s gas-powered generation plants has been a key reason for the gap between Iraq’s installed and available capacity.

Several important features of Iraq’s gas and power sector are worth noting:

- Basra Gas Company (BGC) currently captures ~10bcm with plans to capture ~14bcm by 2021. Current flared volumes amount to ~16bcm.
- BGC currently only captures gas from Licensing Round 1 (LR1) fields – Rumaila (North and South), Zubair and WQ-1. However, it should be noted that in mid-2019, US firm Honeywell signed a MoU with Iraq’s South Gas Company (SGC) to build a new gas hub in southern Iraq to process ~300mn scf/d, helping further cut flared volumes.

⁵ IEA, Iraq Energy Outlook 2019

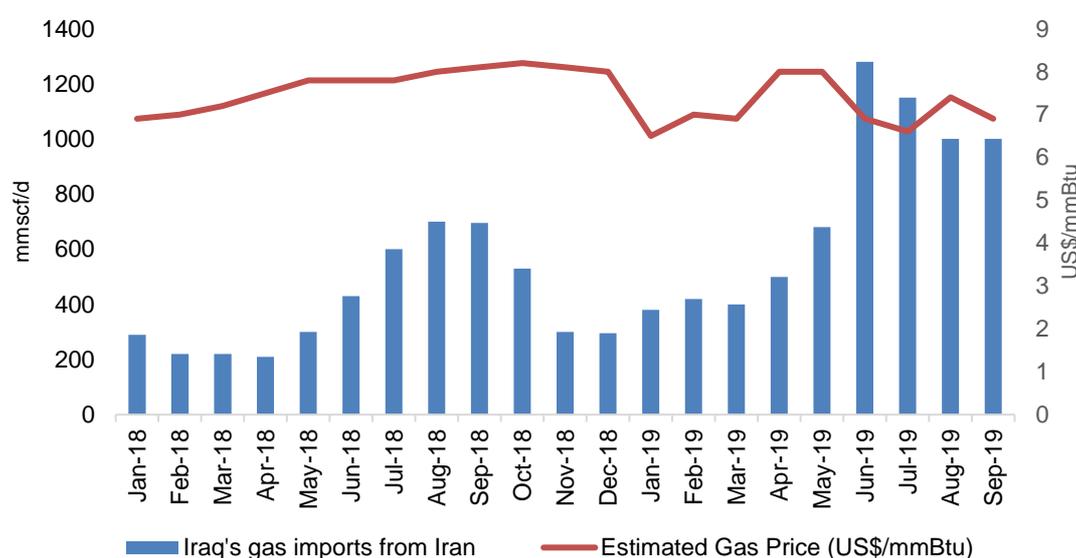
- Iraq imports gas from Iran via two gas import contracts (Diyala and Basra). Iranian gas is the highest cost source of gas in Iraq's balance with an import gas price of around 11% of dated Brent per mmBtu, currently at ~US\$7 per mmBtu. Iraq also imports 900-1,300MW of electricity from Iran per year. Iranian gas volumes feed four power plants near Baghdad (since June 2017): Besmaya, Quds, Mansuriyah and Sadr.

Discussions are currently underway in Washington as to whether or not the US should renew sanctions waivers to allow Iraq to import Iranian gas. A decision will be made on 13 February 2020.

Several important consequences could arise if the US decides to deny Iraq any waiver:

- First, while the call on Iranian gas is seasonal, Iraq's imports of Iranian gas have grown since 2018 (see Figure 4), with 30% of Iraq's power generation feedstock made up by Iranian volumes.

Figure 4: Iraqi gas imports from Iran and estimated gas price, Jan 18 – Sep 19

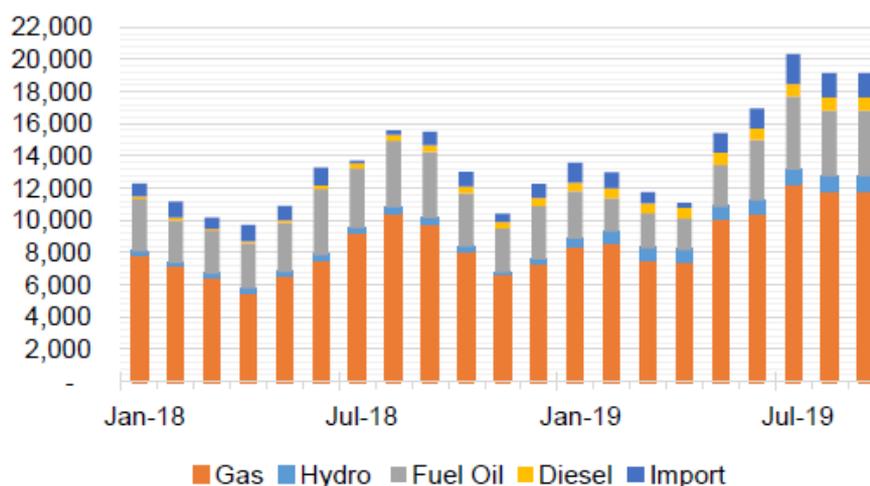


Source: IOC, Author.

- Last summer Iraq achieved peak power generation of ~19.3GW with Iraqi Ministry of Electricity (MoE) generation supply of 14.4GW (and the balance made up by imports/barges/IPP investment).⁶ Peak power demand in 2019 reached ~28GW and one of the key reasons for improved electricity supply in both Baghdad and Basra was higher volumes of Iranian gas and electricity (see above).
- Assuming Washington decides not to renew a waiver for the import of Iranian gas, Iraq can partially offset any cut in Iranian gas imports via higher usage of High Sulphur Fuel Oil (HSFO) - particularly given Iraq's HSFO surplus and weak HSFO price differentials (due to IMO 2020) making it economic to use for power.
- Similarly, Iraq's multi-fuel generation capacity now accounts for 55-60% of Iraq's total fleet, providing operational flexibility to increase crude burn rates and product imports. Despite this, liquids storage capacity at power plants (e.g. near Baghdad) is limited and liquids are less efficient and more costly (with high opportunity costs given oil export options). A key casualty to a cut to Iranian volumes would be the Besmaya power facility near Baghdad which was planning to supply 3GW this summer. Finally, Iraq's options in case of a cut are likely to be undermined by weak institutional capacity across Iraq's ministries, particularly inter-ministerial co-operation between Iraq's Ministry of Electricity (MoE) and Ministry of Oil (MoO).

⁶ I would like to thank Harry Istepanian for this point.

Figure 5: Iraq power generation by feedstock (MW), Jan 18 – Sep 19



Source: IOC, Author.

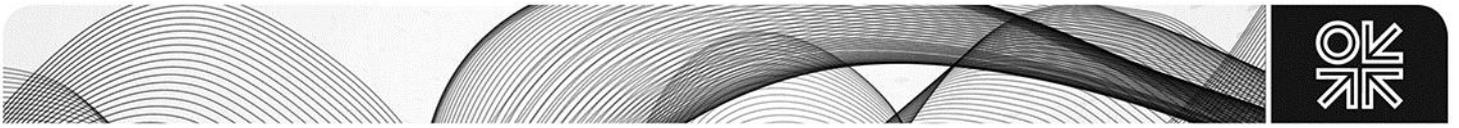
- With peak seasonal power demand this summer of ~28-30GW, a complete cut of Iranian gas and electricity would lead to a total supply-demand imbalance of ~12-13GW. Such a scenario risks not only a re-run of the violent 2018 Basra protests, but a protest movement which will now have to deal with a new Iran dynamic emerging in Iraqi political life.

In many ways, Iraq's reliance on Iranian gas highlights the failure of Iraq's gas management policy over the past decade: high levels of gas flaring; the failure to develop non-associated gas fields; and persistent delays to Iraq's 5th licensing round which includes non-associated gas development in Diyala province (where Crescent Petroleum was awarded four gas fields in 2 blocks).

4. Short-term and long-term risks to Iraq's oil outlook

Looking at oil sector dynamics, in the short-term Iraqi crude production is unlikely to be affected in any major way:

- While a number of IOC workers have been evacuated, Iraqi oil operations have large local forces and Iraq has seen worse evacuations without any major supply disruption;
- It is unlikely that we will see a US withdrawal (at least in the short-term). The US recognises that it is dealing with one of Iraq's weakest post-2003 governments. Despite the growing anti-US sentiment in Baghdad in recent weeks, the US underpins not only Iraq's anti-ISIS effort but also its financial sector and other investment flows. While Washington has failed to translate economic influence in Iraq into any meaningful political base, it is difficult to see how any forceful withdrawal can take place against the backdrop of intense inter Shi'ite rivalry and Iraq's wider interests not to disrupt its economy by sending negative investor signals which then feed into the wider economy, one that feeds Shi'ite political power and the wider Muhasasa system;
- Likewise, while Iraq's security situation may worsen this year, it is important to remember that even at the height of ISIS attacks, the number of attacks against oil facilities in southern Iraq were limited. Also, Iraq's security forces (with US training) are operationally better equipped since 2014. Similarly, Iraqi oil dynamics were more impacted in 2014 by the perfect storm of ISIS and a massive fiscal crisis leading to contract re-negotiations with IOCs and late payments. At present, Iraq is running a fiscal surplus of ~\$29bn and despite a large public wage bill, payments continue to flow to IOCs;
- While Tehran has a keen interest now in deepening its position in Iraq, it is unlikely that we will see any attacks against US assets or oil facilities. Iraq's PMF structure has been weakened and



operational command units are being restructured. The leadership vacuum within the PMF may prove difficult to fill. Instead, Iran has a deeper interest in using the Soleimani assassination to renew its strategic mandate in Iraq and focus attention on undermining Iraq's protest movement. The likelihood now of a semi-permanent standoff emerging in Iraq between the 'street' and Iranian-backed proxy groups in Iraqi political life is likely to lead to significant delays to Iraq's government formation process.

- The next major indicator of US policy toward Iraq will be next month's decision by Washington as to whether or not it renews a US waiver to allow Iraq to import Iranian gas. Any decision by the US not to renew the waiver could signal a more important shift to US-Iraq relations as the loss of Iranian volumes would be difficult to offset this summer – triggering a rerun of violent protests in Baghdad and Basra. While this may trigger yet another political crisis in Iraq, oil operations are unlikely to be affected as fields have their own power operations/redundancy systems and are less reliant on the grid.

Longer term however, recent events could prove a significant game changer for Iraq's oil outlook.

- Even without any major shift in US-Iraq relations, recent events are likely to prolong Iraq's pre-existing political paralysis. It is important to remember that at the current rate of investment (~\$10bn/yr) in Iraq's upstream, supply-side growth can continue. Crucially however, for Iraq to reach a target of 6.5-7m b/d by 2030, this will require significant investment to infrastructure (midstream, water injection and gas and power).
- Looking across Iraq's oil industry chain, significant gains are expected to continue with Iraq's offshore export infrastructure. However, key constraints remain particularly in the areas of onshore pumping capacity and water injection facilities to supply water to fields. Mega-projects such as Exxon's SIIP are crucial to Iraq's water injection needs and are now at high risk of being fully abandoned.
- Sclerotic decision-making has been a hallmark of Iraq's oil sector – particularly at BOC. In many ways, this has been a function of government weakness and poor chains of command. By prolonging Iraq's government formation process, it is difficult to see how mega-projects which need Final Investment Decisions (FIDs) in the next 18 months will pass.

While events remain fast moving and many issues remain to be played out, Iraq's long-term supply outlook may need to be revised given the prolongation of the current political paralysis and the high likelihood of further crises set to emerge over the next 12 months due to multiple factors including power crisis in summer, the non-renewal of gas waivers, unpredictable Trump policy, potential sanctions, and rising public sector wage bill dragging on the capital investment cycle.