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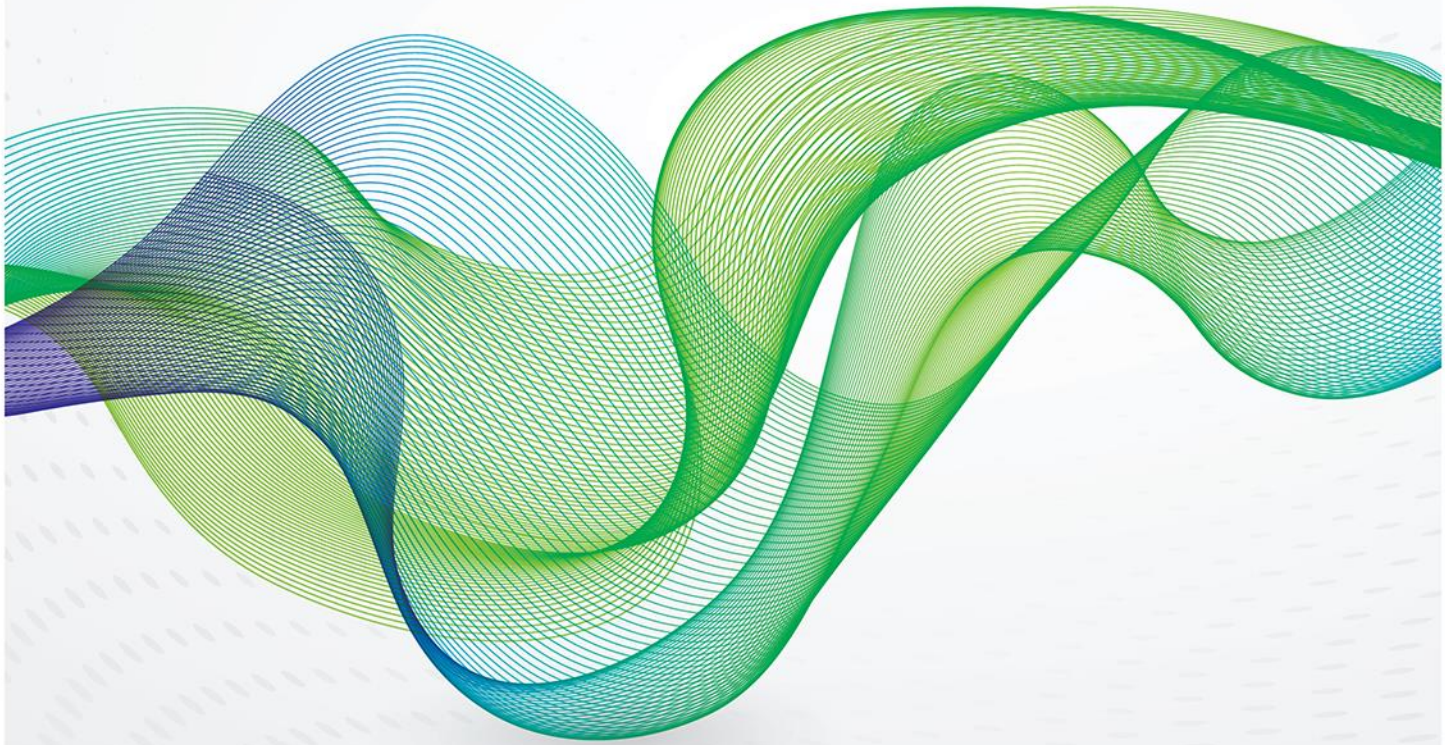
Compounding crises: Iraq's oil and energy economy



OXFORD ENERGY COMMENT

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1. Introduction

Having already started the year in a fragile position, Iraq entered 2020's oil price crisis under visibly different circumstances to the previous crash of 2014-15:

- In 2015, Iraq was the world's second-largest contributor to global liquids growth accounting for approximately 75% of OPEC production growth. The launch of a new crude grade – Basra Heavy[1] – and the build-out of new export infrastructure (and midstream upgrades) allowed the country to increase crude exports and market share.

Figure 1: Iraq annual production growth, kbd

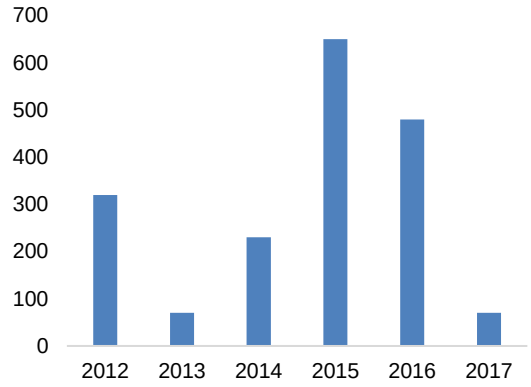
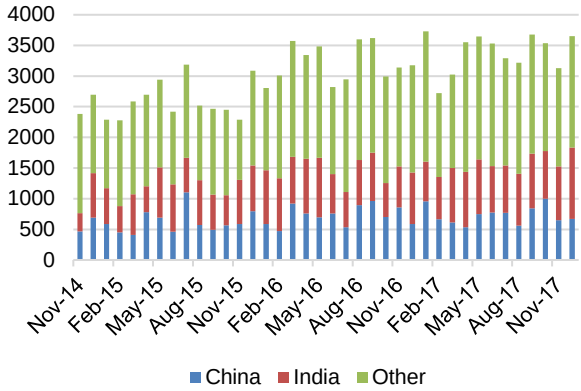


Figure 2: Iraq crude exports, kbd



Source: OIES, KPLER

- Unlike the previous crisis, any serviceable predictor on the current shape of the recovery is notably absent. Uncertainty surrounding the shape of the economic recovery stands in sharp contrast to the period 2014-16, which saw average oil demand grow by just over 1.7m b/d. Furthermore, like other Gulf states in the region, Iraq's lockdown measures have severely impacted non-oil economic performance, and laid bare some key barriers to private sector growth.[2]
- Iraq's role in OPEC is also changing. The latest OPEC+ agreement to extend cuts introduced the idea of a compensatory mechanism for countries with weak compliance, with Iraq being one of the key triggers for this new mechanism. Despite Iraq being OPEC's second-largest producer, lower GCC-Russia tolerance for Iraqi compliance levels within OPEC+ stands in sharp contrast to the period 2016-18.
- Iraq's share of public spending has increased significantly since 2014-5. Salaries and pensions now account for ~25% of GDP, compared to 14% of GDP in 2013. With one of the highest public wage bills in the Middle East, the drop in oil prices has amplified the size of the shock to Iraq's political and economic fabric. Pre-existing challenges also complicate matters: protests, a worsening geopolitical climate[3], and gas[4] and electricity shortages[5]. Furthermore, unlike other GCC economies, Iraq has no room to offer any kind of stimulus package given the outsized allocation to wages and pension payments in the country's budget.

With a new government in power since May 2020 (coinciding with the start of OPEC+ cuts agreed in April), this Comment examines some of the challenges facing Iraq's oil and energy economy and how they are interacting with both economic and oil policy decision-making. **Section 2** starts with an overview of the impact of the oil crisis on Iraq's economy**; Section 3** examines Iraqi oil production

[1] based on a ramp-up of volumes from West-Qurna 2 and Halfaya. See: Ahmed Mehdi, Iraqi Oil: industry evolution and short and medium-term prospects, OIES Working Paper, October 2018

[2] Iraq's private sector has typically found it difficult to compete with cheap imports from Iran and Turkey.

[3] See Ahmed Mehdi, Bassam Fattouh, Iraq's energy challenges are growing amid geopolitical turmoil, Financial Times, February 2020

[4] The majority of Iraqi gas production is associated gas from oil fields in Southern Iraq.

[5] See Iraq's energy sector: A roadmap to a brighter future, International Energy Agency, 2019

dynamics and the role of OPEC+ cuts; **Section 4** examines refining and trade movements; and finally, **section 5** examines the impact of the crisis on Iraq's electricity sector.

2. A fiscal shock

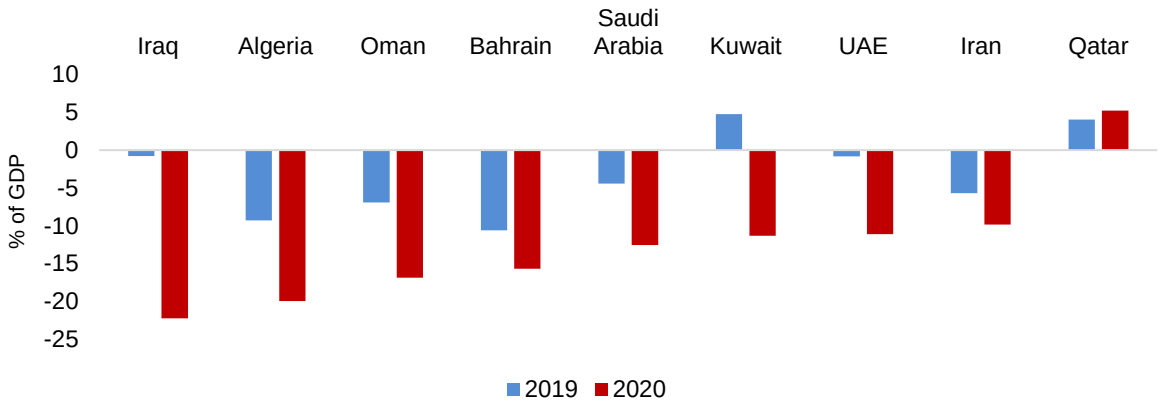
The precipitous decline in oil prices, which at their nadir in April had fallen by 70% compared to the start of the year, has severely impacted Iraq's government revenues. In April, oil export revenues fell to $1.4 billion (down from $6.1 billion in January), leaving a gap of around $4.1 billion to meet obligations for essential spending on salaries, pensions[6] and the running of government offices. A partial recovery in oil prices in May meant that revenues recovered slightly, but at US$2.1bn, this was still significantly lower than the amount needed to keep afloat.

Declining revenues have already caused visible financial strains, and forced the new government to tap into its foreign reserves (estimated at around $67 billion) in order to meet its monthly salary obligation for May. According to one of the Prime Minister's advisors[7], by the end of the month, Iraq's government account (different to foreign reserves) had dwindled to just $300 million[8], with little hope of significant relief in the coming months unless prices rise sharply from here.

In response to the financial and economic situation, and recognising that Iraq is unlikely to find respite in higher long-run prices, the new Prime Minister, Mustafa Al-Kadhimi, has assembled a high-level 'economic crisis committee' that is examining the country's options to bolster revenues and reduce expenditures. So far, the discussion has focused on reducing state employee benefits, since these measures will have the fastest feedback. However, the committee is also charged with examining the options for deeper changes to make its economy more resilient in the future with the objective of presenting these proposals to Iraq's parliament by September 2020.

The oil price decline, coupled with the Covid-19 shutdowns which have stunted domestic commerce, are expected to severely impede Iraq's economy this year. Private consumption accounts for around 60% of the gross domestic product (GDP), and will suffer from the likely reduction in salaries and benefits. The deferment or cancellation of government capital projects due to the constrained fiscal environment will, likewise, have reverberations across the non-oil economy. As a result, the World Bank now forecasts Iraq's economy will contract by nearly 10% this year, while the International Monetary Fund's (IMF) latest outlook, Iraq's current account is expected to register one of the largest deficits in the world (see Figure 3).

Figure 3: Iraq's fiscal deficit vs regional peers



Source: IMF

[6] Alongside pensions for government employees, Iraq also provides pension allowances as part of a transitional justice scheme to victims under Saddam Hussein.
[7] Hashim Dawood, PM Mustafa Al-Kadhimi's economic advisor
[8] While representing a specific calender day, y-o-y available cash flow declined significantly in 2020.

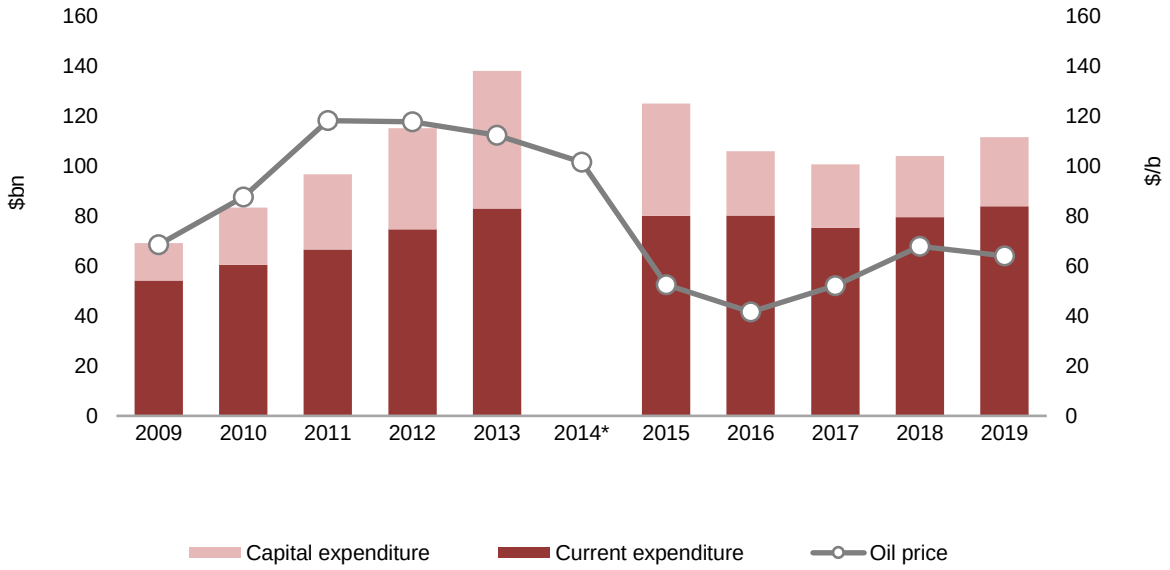
As a result, maintaining the Iraqi dinar peg will be a more costly proposition, and will add another source of competition for the country's foreign reserve holdings. While a devaluation of the Iraqi dinar is being debated by policymakers, the ensuing inflation this would lead to may be unpalatable at a time when the state's ability to pay salaries is already being called into question.

In essence, Iraq's financial and economic crises are so severe that no single measure will be enough to bridge the gap between revenues and expenditures. Likewise, given the extent of the implied deficit at current oil prices that will be required just to pay for the most basic functioning of the state and to ensure that Iraq's 3.5 million public servants, 500,000 employees of state owned enterprises, and the further 2.5 million who receive state pensions, continue to be paid, the country will not be able to rely solely on external borrowing to alleviate the strains. The price for Iraq's 2028 bond plummeted in April, by 30 percentage points since the beginning of the year, and sources of discretionary financing will not be as plentiful in a global economy reeling from a pandemic as it was during the 2014 oil price downturn. The government has turned to local banks to borrow around $2.5 billion. This, however, is not a sustainable avenue for the future, and risks crowding out borrowing from the private sector, stunting further the potential for an economic recovery in the non-oil sectors.

Likewise, in late June, in the absence of a 2020 budget, a new law[9] was passed by Iraq's parliament authorising the government to borrow US$18bn: a $5bn ceiling limit for external borrowing and US$13bn for internal borrowing via the issuance of treasury bonds to local banks (financed by Iraq's Central Bank). While a useful stop-gap measure, the mechanism has put the spotlight on Iraq's liquidity crisis.

Examining Iraq's response to the previous oil price cycle offers some indication about the measures it will most likely take to cope with its current predicament. When global oil prices started falling in 2014, Iraq reacted by drastically cutting its capital spending. The impacts of these moves were still being felt in 2019 when the national government's budget remained 20% smaller than it was in 2013 (see Figure 4). Due to the very limited participation of the private sector across the economy, the major contraction in public sector spending took a toll on virtually all essential services in the country as authorities deferred investments across most sectors.

Figure 4: Oil price and Iraq's budget, 2009-2019



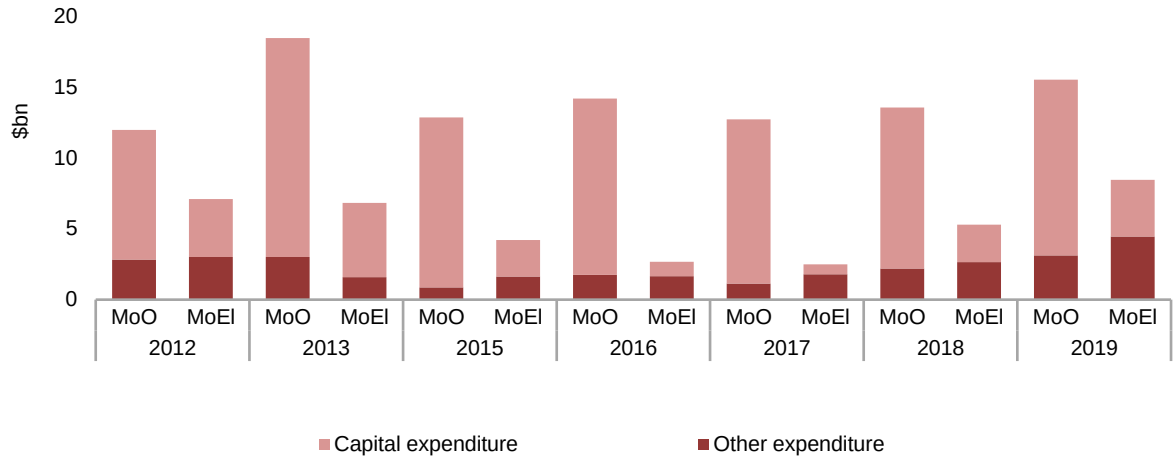
***** Iraq did not pass a budget in 2014, so there are no spending data for the year.

Source: IEA, OIES

[9] See Iraq parliament passes borrowing law, Iraq24.com

The energy sector was not immune to these cutbacks. The average annual capital budget allocated to the Ministry of Oil (MoO) was one-fifth lower in the 2015-18 period than in 2013, affecting Iraq's ability to pursue its long-term oil and gas development targets. The effect has been even starker for the Ministry of Electricity, where the budget for capital expenditure is down by more than 60% compared with 2013 levels (see Figure 5).

Figure 5: Capital and current expenditure allocated to oil and electricity ministries (2012-19)



Source: IEA, OIES

There are preliminary signs that the current downturn in oil prices is already impacting capital expenditure in the country. As previously mentioned, the government has not passed its 2020 budget, and as such, its spending is curtailed at a pro-rated level of 1/12 of realised spending from the previous year. There are also signals that all capital investments the Ministry of Electricity planned for this year have been indefinitely deferred. This puts at risk a slew of much-needed investment in the grid (transmission and distribution losses in the country are some of the biggest in the world) and affects an estimated 7,000 megawatts (MW) of planned generation capacity expansion.

Furthermore, constrained budgets will call into question Iraq's plans to capture and use natural gas. Last year alone, Iraq signed deals for an estimated 1 billion standard cubic feet per day (cf/d) of gas capture, which was to be used to feed its power stations (see Table 1).

Table 1: List of gas capture projects

Field/asset	Company	Proposed production
Ratawi gas hub	Honeywell/Bechtel	300 million scf/d
Halfaya	China Petroleum Engineering & Construction Corporation	300 million scf/d
Basra Gas Company	Shell	400 million scf/d

Source: OIES

These projects would have gone a considerable way to reducing the huge volume of natural gas that is currently allowed to escape unused from the country's oil industry. But any available capital will now almost certainly go towards repaying international oil companies (IOCs) petroleum (and supplementary) costs, which are the priority because of the immediate revenues they generate. Indeed, China Petroleum Engineering and Construction Corporation (CPECC), which is leading work on projects with a combined capacity of 700 million standard cubic feet per day at Halfaya and the Basra Gas company, has already announced a suspension of its work, citing a lack of funding. The implications for Iraq in this new reality of lower revenues is that, in the absence of innovative investment agreements with oil-

field operators, all its plans to capture unused natural gas and put it to work generating electricity will face considerable delays.

3. Oil sector dynamics

For Iraq's upstream, early signs of crisis started in March when the ~100,000 b/d Gharraf field was shut following Petronas' decision as operator to evacuate its foreign staff. Elsewhere, CNOOC Iraq – having issued a private tender in February to upgrade degassing units at the Missan fields (Buzurgan, Abu Ghirab) – found itself having to revise forward production guidance.

Basra Oil Company (BOC) – responsible for Iraq's southern oil production - was also impacted. In mid-March, BOC chief Ihsan Ismael (now Iraq's Oil Minister) set up a crisis cell to deal with the covid-19 fallout. Apart from operational issues – shift rotations, visas, Health, Safety and Environment (HSE) – a core agenda item of their meetings was dealing with the IOCs, responsible for the majority of Iraq's oil production.

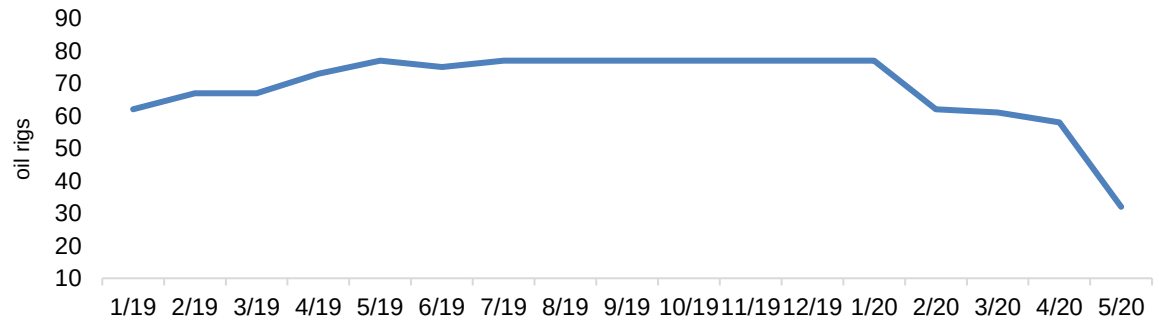
As benchmark crude prices declined throughout late March, BOC issued a letter to all IOCs requesting a 30% reduction in Work Programs and Budgets (WP&B) and a deferral of payments for Q1 and Q2 2020. These payments include the costs of production recovered by IOCs as part of their Technical Service Contracts (TSCs).

IOCs responded accordingly: contractors were dismissed, drilling contracts terminated and supply-chains re-organised to deal with the budget overhaul. Major IOCs such as BP, Lukoil and ExxonMobil also reduced booking orders for drilling rigs, pumps and other Oilfield Services (OFS) equipment procured from local contractors and international OFS majors.[10] Halliburton Iraq – a major OFS provider to BP Iraq and ENI Iraq - cut its expatriate workforce in Basra by over a third and had several rig service contracts cancelled.

The intractability of the crisis was captured several weeks following BOC's initial order to IOCs to cut budgets. On 20 April, BOC issued another letter to IOCs titled 'Basra Local Staff' requesting that despite the difficult economic situation, IOC contractors should avoid discharging local Iraqi contractor firms, given the social consequences of further exacerbating Basra's already high unemployment rate – one of the key causes of Basra's protests in 2018.

BOC's budget was also impacted. The state-owned company cut its 2020 drilling program by half and cancelled or deferred major strategic projects such as the Majnoon expansion project. BOC's partners, KBR and the Chinese firm Anton (founded by ex-CNPC managers), have delayed drilling programmes despite the recent construction by Petrofac of a new processing facility to support a production increase from 240,000 b/d to 400,000 b/d by 2022.

Figure 6: Iraq rig count (federal Iraq only)



Source: Baker Hughes, BOC

[10] The key international OFS players include: Weatherford, Baker Hughes, Schlumberger, and Halliburton

Adding further complexity, the cuts to budget expenditures (which include drilling and well workover programmes) have taken place against the backdrop of several pre-existing challenges, including:

- **Growing cost and complexity of well management**: A dynamic driven by Iraq's shift from primary to secondary recovery and the growing importance of water injection wells to optimise reservoir at fields (particularly as focus shifts to the heavier Mishrif reservoir). While BP has made upgrades to the Qarmat Ali Water Treatment facility[11] – which has a capacity of approximately 3m b/d (but currently injecting 1.4m b/d as shown in Figure 8) - Iraq's water needs are set to increase four-fold over the next decade. For example, Rumaila Operating Organisation (ROO)[12] will need around 5m b/d of water to reach its Plateau Production Target (PPT).[13] Lukoil's West Qurna-2, which relies on water injection wells from the Dammam reservoir, currently relies on ~380-390,000 b/d of water but its needs are set to triple as it works toward meeting its long-term PPT. Likewise, following a major technical due diligence conducted by Chevron last year of Majnoon, the field's long-term water requirements were identified as a key challenge, with its water requirements set to quadruple from 200,000 b/d to around 800,000 b/d by the mid-late 2020s.

Figure 7: Rumaila water injection, 2013-17, kbd

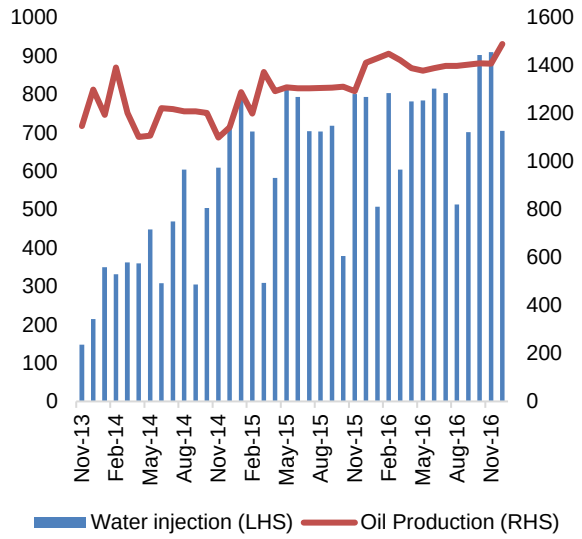
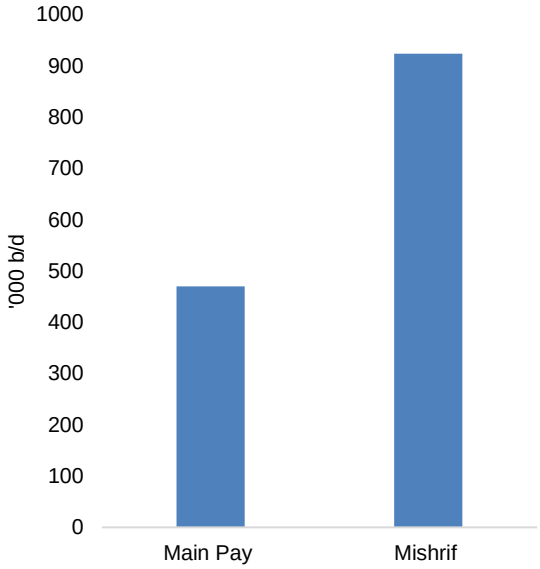


Figure 8: Rumaila water injection, Mar 20, kbd



Source: Authors analysis

- **Growing use of electrical submersible pumps (ESPs) for artificial upward lift** and the need to ensure consistent sources of electricity and power to upstream operations;
- **More complex oilfield service supply chains**: Growing local content requirements and pressure to integrate local OFS companies into existing supply-chains. While IOC contractors such as BP at Rumaila have introduced highly transparent tender systems (e.g. ISNetworld), procurement challenges continue to complicate supply-chain management, e.g. equipment delays at ports, custom clearance, lack of specialist local companies. While Iraq's local OFS market has matured over the past several years[14], ongoing support is needed to ensure they reach international standards.

[11] Zubair also uses approximately 15% of the facility as well as BOC for industrial water purposes. Thanks to Zaid Elyasseri, BP for this point.
[12] Formed in 2010, ROO was formed as an unincorporated JV between BP, PetroChina and SOMO. BP is the lead contractor.
[13] This will come from Qarmat Ali, Produced water reinjection and the planned Common Seawater Supply Project (CSSP).
[14] Local OFS companies have increased their market share in Iraq's OFS market from ~9% in 2009 to ~30% in 2020.

- **Growing need for export infrastructure upgrades**: As previously mentioned, the fiscal impact of the crisis has impacted federal budget transfers to the MoO, particularly for capital spending on infrastructure mega-projects. Export infrastructure upgrades are a key priority given the need for pumping capacity upgrades at Fao and the planned development of new sea pipelines (4 and 5) where BOC is working with ENI and BP.

The oil crisis has also drawn attention to the shortcomings of Iraq's petroleum contract model - the Technical Service Contract (TSC) model governing IOC operations in Iraq. A key manifesto pledge of the current government is a commitment to revisit Iraq's TSCs with IOCs. While negotiations with IOCs are ongoing, several important points are worth highlighting:

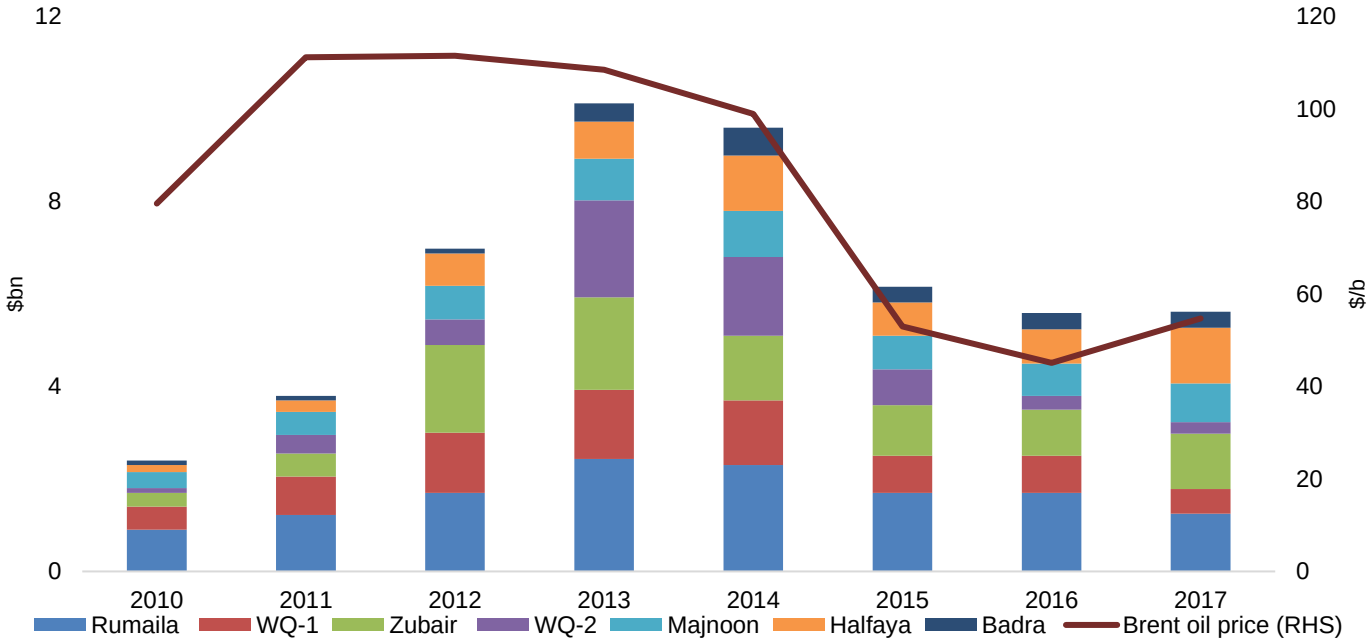
- The crisis – like that in 2014-15 – has highlighted the inflexible nature of the TSCs and the misalignment of interests during low oil prices. Under the TSCs, IOCs are reimbursed for their production costs on a quarterly basis and receive a taxable remuneration fee on incremental production (i.e. production above pre-contract levels). The TSCs do not work with oil prices below $40-45/bbl as the government's room to ensure cost recovery is limited and the taxable remuneration fee is price-insensitive.
- No contract is immune to re-negotiation and Iraq's TSCs have already been re-negotiated once before on all contracts (see Table 2). Likewise, the oil price drop has previously led to major revisions to field development budgets, impacting upstream capital investment (see Figure 9). However, as negotiations continue, the strategic agenda governing re-negotiations will be almost wholly different to 2013-14: first, IOCs portfolios are shifting and the cost of capital is increasing; second, with oilfield operations increasing in complexity and scope, IOCs Internal Rate of Return (IRR) and Net Present Value (NPV) sensitivity will be impacted by payment deferrals and requests to adjust field development budgets. With investments set to be cut for 2020-21, this will inevitably lead to slower production growth over the next 5-6 years (with lower associated gas utilisation), creating a need to renegotiate TSCs such that IOCs are incentivised to make investments on their own account in return for better economic returns – a key strategic consideration for Iraq's Oil Ministry going forward.

Table 2: Renegotiated terms at TSCs (2013-14)

Project	Previous PPT (m b/d)	Revised PPT (m b/d)	Licence extension (years)	Revised state equity (%)	Notes
Halfaya	0.535	0.4	10	10	
Rumaila	2.85	2.1	5	6	Removal of R-factor
West-Qurna 1	2.325	1.6		9.6	
West-Qurna 2	1.8	1.2	5		
Zubair	1.2	0.85	5		Removal of R-factor
Gharraf	0.23	0.23			

Source: Wood Mackenzie, author

Figure 9: Capital Investment by IOCs at selected TSCs and oil price

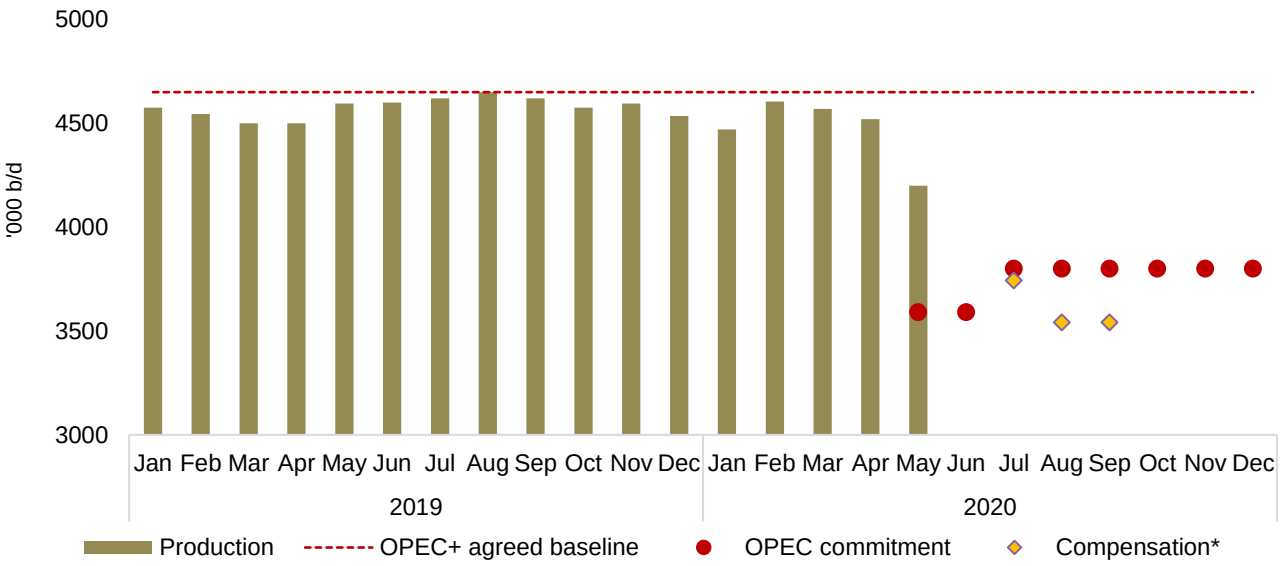


Source: Companies

3.1 Iraq and OPEC+ cuts

The challenges outlined above have come to the fore with Iraq's pledged commitments under the April OPEC+ deal – a historic producer agreement which saw OPEC+ pledge to cut 9.7m b/d in May and June. Iraq's quota under the April deal was 3.59m b/d (for May-June), just over 1m b/d below its October 2018 production baseline (the reference used to assess the cuts). Having produced at a level significantly above its agreed target in May, Iraq agreed to additional compensatory cuts of 57,000 b/d for July, and 258,000 b/d in August and September.

Figure 10: Iraq's OPEC+ contribution, kbd

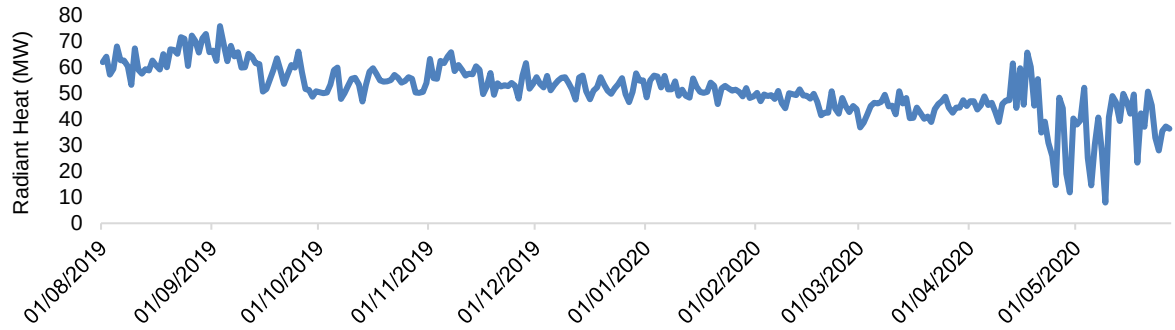


Source: IEA, OIES
* Further compensatory cuts agreed due to producing over the agreed quota in May.

Since April, internal discussion within BOC has taken place on how Iraq should implement its cuts (without much consultation with IOCs). Notwithstanding the obvious federal revenue challenges, several other factors complicate Iraq's OPEC+ strategy, including:

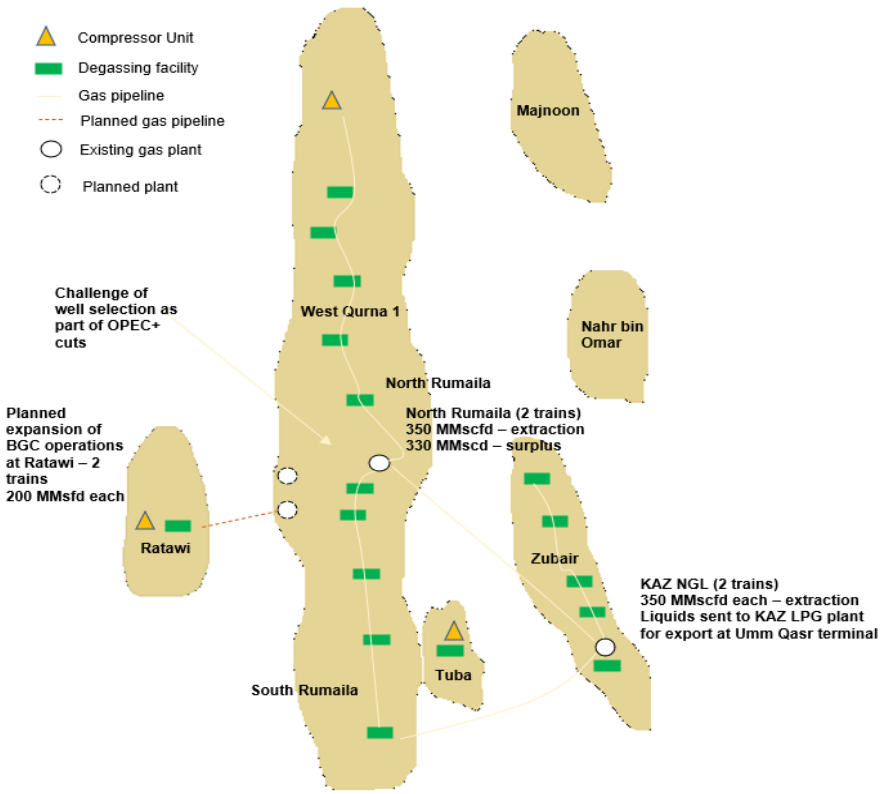
- **Ensuring production cuts do not impact Iraq's associated gas output:** The majority of Iraq's gas is associated with oil production. Figure 11 shows that Iraq's production decline in May has led to a reduction in gas flaring, as measured by the radiant heat emitted from Iraq's flares. While processed volumes have to date been unaffected, this challenge is set to grow. As Figure 12 shows, growing pressure on key IOC-operated fields to cut production has to be carefully managed to ensure dry gas processing/extraction operations remain uninterrupted, particularly as Iraq enters peak seasonal power demand.

Figure 11: Iraq flaring dynamics in Southern oil fields



Source: Kayrros, OIES

Figure 12: Iraq associated gas capture at Rumaila, WQ-1 and Zubair

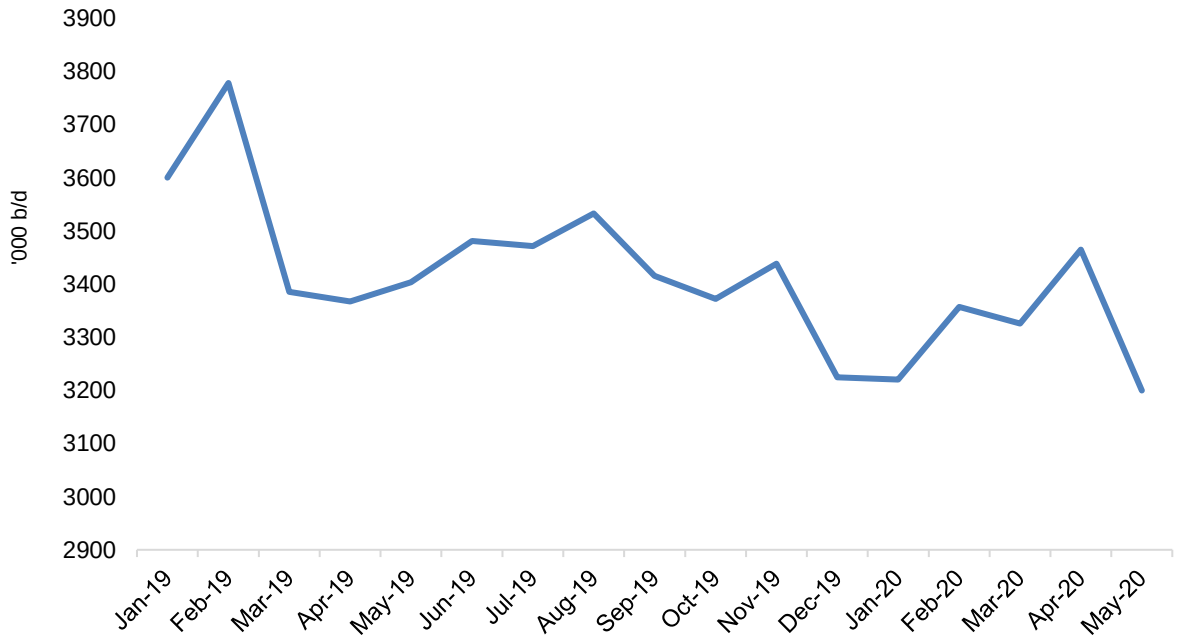


Source: OIES

- **Each of the IOCs operate under a separate TSC with separate Joint Management Committees (JMC)**: this can create bureaucratic challenges, particularly given the need for co-ordinated decision-making, a situation which also applies to BOC and SOMO, with regard to production flows and export loading programmes.
- **Cuts to IOC-operated fields leaves Iraq paying compensation fees for production curtailments:** this explains why during previous OPEC+ cuts, Iraq has avoided cuts to IOC-operated fields (instead opting for BOC-operated ones). However, with production at BOC-operated fields – Ratawi, Luhais, and Nahr bin Omar – already below October 2018 production levels (by ~280,000 b/d), the operational focus has now started to shift to IOC-operated fields as there is little production left to cut from these fields.
- **Petroleum costs (capex/opex) present a greater challenge to Iraq than paying IOCs remuneration fees**: a logical strategy for Iraq would be to avoid cutting from fields with the highest net margin (and minimal disruption to gas production). In this light, despite the size of Rumaila (with production capacity of 1.5m b/d), the field is the second lowest cost per barrel (capex/opex) at $3.5/bbl, with low transport costs and the highest share of associated gas output in Iraq's portfolio. Beyond fields with high lifting costs (e.g. Zubair) and poor-quality crude, Iraq must also consider the impact of cuts on long-term IOC field economics, particularly given the different stages of various fields in the investment cycle (e.g. greenfields such as West-Qurna 2).

Despite the challenges highlighted above, Iraq did witness a m-o-m drop in production from ~4.6m b/d in April to 4.21m b/d in May 2020. The fall in production in May was also reflected in lower crude exports, with SOMO[15] notifying term customers that it would be reducing supplies (see figure 13).

Figure 13: Iraq crude exports (Southern only), kbd



Source: KPLER, OIES

Despite the drop in production and exports in May, Iraq was still well above its April OPEC+ quota (4.21m b/d vs. its target of 3.592m b/d). The compliance gap was not left unnoticed. Several days before

[15] SOMO's OSPs in May and June also reflected medium-sour crude tightness. For a wider discussion on Middle East pricing during the crisis, see: Ahmed Mehdi, Middle East Benchmark Pricing and the Oil Crisis, Oxford Energy Comment, June 2020

OPEC+'s virtual meeting[16], Iraq's direct communication for May production came in and led the Joint Ministerial Monitoring Committee (JMCC), headed by Saudi Arabia and Russia, to trigger a compensatory mechanism which would see Iraq make up for its quota in July, August and September.

Several signals suggest that Iraq's compliance is set to improve over the coming months. To show its commitment to improving compliance, in June, Iraq's MoO requested IOCs to reduce production from the following fields. These include:

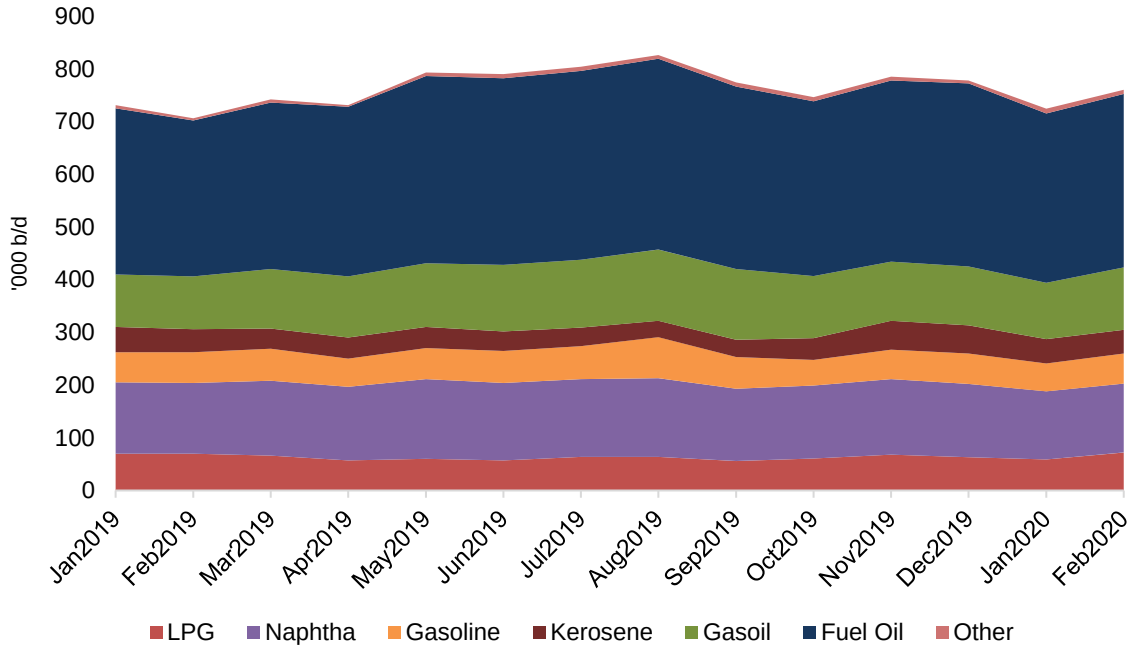
- **ExxonMobil's West Qurna-1**: reduction of output by 120,000 b/d
- **Lukoil's West Qurna-2**: reduction by 120,000 b/d
- **BP's Rumaila**: reduction by 115,000 b/d – the cuts to drilling at Rumaila will focus ROO on well workovers and ensuring operational wells feeding gas to BGC operations are not impacted. This means that operations at Degassing stations in North Rumaila (DS1-5) are unlikely to be impacted. However, drilling planned in South Rumaila is more likely to be reduced.

Undoubtedly, while Iraqi compliance is set to improve in the coming months, full compliance will unlikely be reached, keeping Iraqi oil production dynamics in the spotlight.

4. Refining and product balances

This year's crisis has also highlighted the vulnerabilities of Iraq's downstream sector. Iraq's refineries have an operational capacity of ~700,000 b/d, with a high fuel oil yield[17] (see Figure 14).

Figure 14: Iraq refinery output, kbd

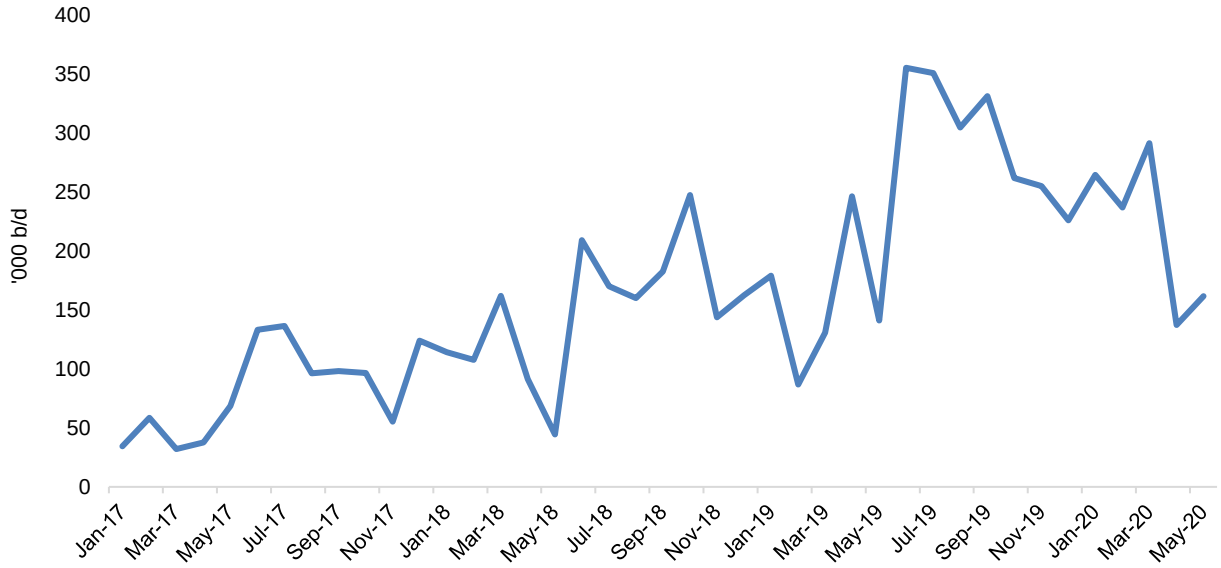


Source: JODI

[16] OPEC+ agreed to extend the 9.7m b/d supply cut schedule until July, with the intention to slowly phase-out the cuts for the duration of H2 2020 (to 7.7m b/d) and 2021-22 (to 5.8m b/d).
[17] For example, Iraq's Al-Shuaiba refinery in Basra has an operational capacity of 240,000 b/d, with 125,000 b/d fuel oil output.

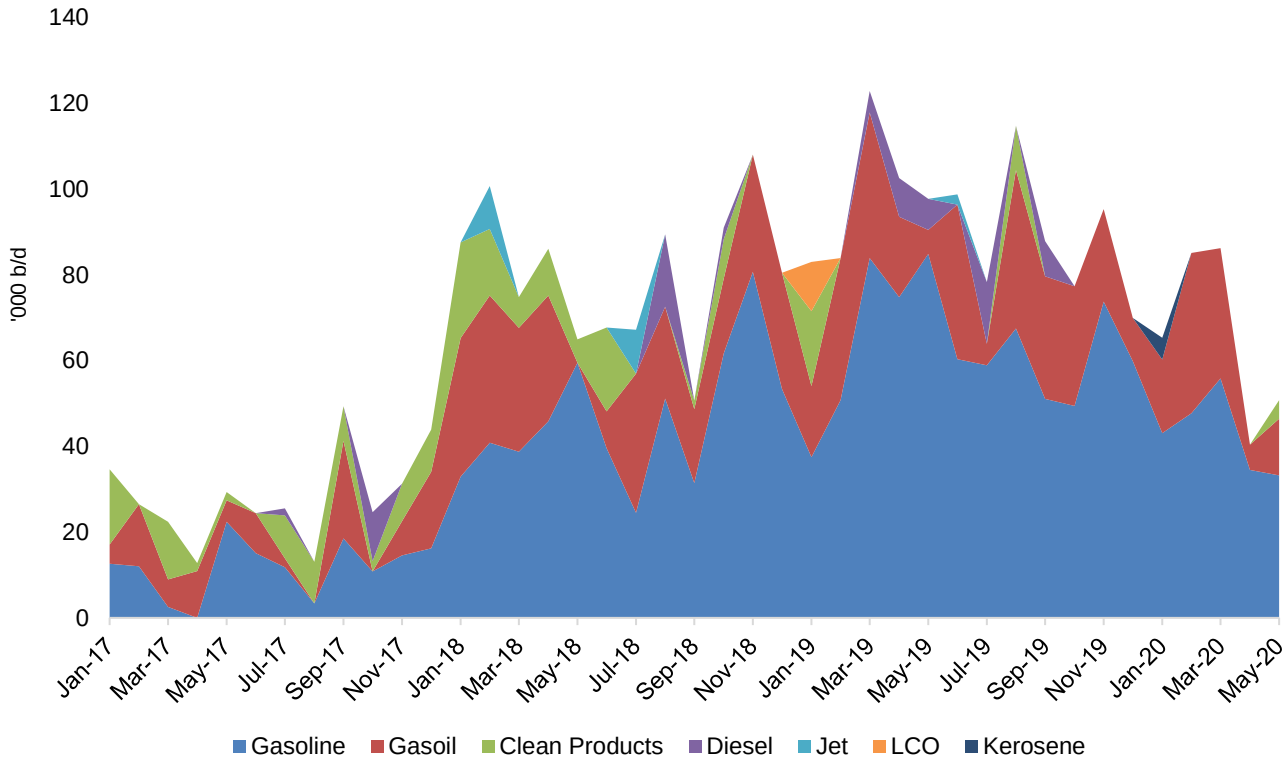
The sharp contraction in domestic demand in April 2020 led to a decline in fuel oil exports (see Figure 15), driven by lower runs. Iraq also witnessed a decline in gasoline demand, as reflected in lower clean product imports (see Figure 16).

Figure 15: Iraq fuel oil exports, kbd

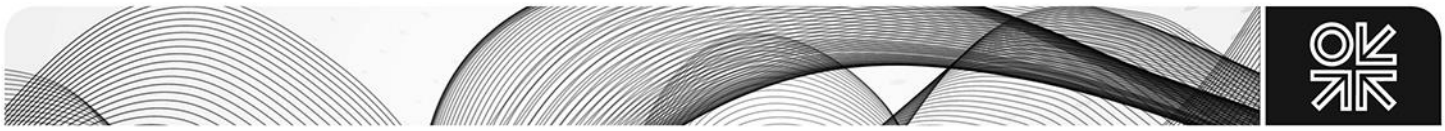


Source: KPLER, OIES

Figure 16: Iraq clean product imports, kbd



Source: KPLER, OIES



However, with demand now starting to recover from May 2020, old problems are set to re-emerge, interacting with Iraq's existing economic problems. In particular:

- Historically, Iraq has been spending ~$2.5-$3bn/year on product imports.[18] This product import bill will continue to run against weaker balance sheets for H2 2020 and amplify Iraq's economic challenges. Likewise, covid-19 has caused a number of delays to Iraq's refinery upgrade strategy, particularly at Doura refinery where a new isomerisation unit to convert light naphtha to higher-value gasoline blendstock has been planned.
- While covid-19 and the oil crisis has not impacted the schedule for the 140,000 b/d Kerbala refinery (due to be operational in 2021 and now 80% complete) which will help address Iraq's product imbalance, clean product imports are set to remain in a range of 60-80,000 b/d for the next several years, particularly given structural demand factors such as: population growth (~1m/yr); Iraq's growing car parc; power sector requirements; and the ongoing need at Iraq's refineries for high-octane gasoline for blending purposes.

Electricity: gas and power

Iraq's electricity system is beset by a number of issues. Its power generating fleet has a nameplate capacity that should meet even summer peak demand, but effective capacity is reduced by half due to poor maintenance and the use of sub-optimal fuels. Of the electricity that is produced, a further 50-60% is lost in transmission and distribution, making Iraq one of the worst performers globally by this metric.

As a result, outages remain a daily occurrence for most households, as increasing demand for electricity has outpaced any increases in capacity, spurred in particular by high demand for cooling in the hot summer months. Over the past five years, for example, the size of the gap between peak electricity demand and maximum grid supply of power has widened, even though available supply has increased by one-third. Investment in infrastructure, particularly the distribution networks, has lagged behind what is required, as budgets were constrained following the last oil price downturn in 2014, and only recovered to their pre-crisis levels in 2019. Meanwhile, tariff collection, where it exists, has not been sufficient to supplement the capital budget. This creates a negative cycle whereby lower revenues lead to lower capital investment, which in turn limits available supply and revenues.

The economic constraints brought on by lower oil prices and revenues further dent Iraq's ability to invest in the rehabilitation of its energy sector, which will require between US$5bn and US$7bn per year over the next decade[19]. As discussed earlier, the current modus-operandi suggests that in the absence of a budget in 2020, and given the lower oil prices, the Ministry of Electricity will make no allocations beyond its current expenditure budget, which imply the deferral or outright cancellation of nearly 7 GW of capacity additions. In a sense, policymakers in Iraq now face a choice between not investing at all in the sector until oil prices recover, and revisiting their investment models in an effort to attract private investment. This is not a palatable choice; the gap between supply and peak demand has increased from 6,000 MW in 2019, to around 9,500 MW in July 2020, leading to increased outages at a time when the demand for cooling is at its highest.

The economic crisis committee chaired by the Prime Minister and the Minister of Finance is mandated to examine the larger structural reforms that can help remedy the deeper ailments of the economy in the medium and long term, in an effort to make it more resilient in the future.

Given that one of the largest expenditure items the government faces is the subsidies to electricity consumption, it is difficult to envision an extensive economic reform programme (as is being touted), that does not address this issue. Electricity subsidies cost the state around US$12bn per year, equivalent to roughly 9 months of total revenue at the level obtained in April. This burden is particularly acute when the country's fiscal health is as vulnerable as it is now. Apart from reducing a significant source of strain on state coffers, a well-studied reform of this subsidy would have manifold other

[18] Author's discussion with Mudher Saleh, Economic Advisor to Iraq's Prime Minister

19 See Iraq's energy sector: A roadmap to a brighter future, IEA 2019.

benefits. Firstly, it will help generate revenues for a sector that has been insolvent for years, making available to the government more resources to reinvest into the system.

Secondly, tariff reform would also help send a price signal that could moderate the current high rate of electricity demand growth, which has been increasing at a rate of 10% a year. In addition, the reform of subsidies need not imply a significant increase in household electricity expenditure. Currently, average middle-class consumers in Baghdad rely on private neighbourhood generators to augment their grid-supplied electricity during brownouts. This can be extremely costly, bringing electricity utility bills of around $330 per month per household. A subsidy reform that is coupled with increased regulation on private generators (whose fuel supply is also subsidised by the state) could mitigate any rise to consumer expenditure, while transferring the revenues currently accumulating to the private generators to the state utilities.

The constrained budget environment will almost certainly also stifle Iraq's plans to bolster its natural gas industry. Currently, the country produces around 32 billion cubic metres (bcm) of gas, but flares 16 bcm. Of the gas that is produced, around 11 bcm is associated with oil production in the country's southern fields. The current market conditions will have only a modest impact on the short-term prospects. The OPEC+ deal to which Iraq is committed will necessarily involve a cut to oil production in the most prominent oilfields in the south, and although this will have a commensurate impact on the produced levels of associated gas, it has not yet impacted the levels of marketed gas available as the reduced produced gas has been taken out of the share of the flared component. However, it cannot be discounted that prolonged oil output cuts may eventually impact produced gas volumes.

The longer-term impact on Iraq's natural gas production prospect will likely be more malign. Last year, Iraq signed three deals that were designed to expand its gas capture capabilities by 1,000 million standard cubic feet per day (mscf/d). Of these, the developer for the two on which a final investment decision was taken, the development of Halfaya and the expansion of Basra Gas Company, with a combined capacity of 700 mscf/d, has already announced a postponement to the works. The third project, to form the Ratawi Gas Hub, has not gone beyond the MoU stage and is unlikely to progress under current circumstances.

The constraints to the Iraqi budget will likely mean that any capital that is available will likely be directed towards payments to upstream oil operators, given the fundamental need to ensure the continued health of the sector that Iraq's entire economy depends on most. As in the electricity sector, the choice for Iraqi policymakers will then become whether to defer projects indefinitely, or to explore innovative investment models that can attract private investment. For the gas sector, and in the absence of domestic price hikes for dry gas for power generation, this could include findings ways to make the most out of the natural gas liquids infused in the associated gas; the ethane cut from Basra is estimated at around 16%, and is currently either flared, or used in the natural gas stream in power generation.

Conclusion

Having navigated a highly turbulent decade, Iraq is no stranger to oil price volatility or political crisis. Since the first oil bidding rounds in 2009, it has faced the oil price crash of 2014, fought a costly, two-year war against ISIS, suffered growing electricity shortages, security threats, protests, (inter) party-political fragmentation and severe economic and financial constraints. Despite these multiple, concurrent hurdles, oil production has nearly doubled over the last decade. This success, however, has spurred the unsustainable growth of the public sector and its attendant ills, and has done little to increase the resilience of the Iraqi economy to market shocks.

As this comment has explained, Iraq now finds itself in a negative cycle: lower revenues lead to lower capital investment, which in turn limits available supply (particularly of electricity), and revenues. While oil prices have doubled from their April lows, supported by global government policy on easing lockdown restrictions and OPEC+ cuts, the future path of prices remains highly uncertain. Likewise, the trade-off of higher prices versus lower production come with their own challenges: ensuring compliance

(particularly as compensation cuts kick-in); developing a field portfolio strategy based on upstream project economics; maintaining associated gas output; and finally, maintaining IOC confidence.

For Iraq's new government (in power since May 2020) – now dealing with a worsening public health crisis – the compounding series of issues facing the country has focused minds on fiscal reform: cutting the size of the payroll budget, improving bureaucracy, creating a fiscal rule around oil prices, and recognising the need to gear oil revenues toward investment projects not just pro-cyclical public spending.

Survival is not however a strategy and beyond 2020, the aftermath of this year's crisis will continue to reverberate for the next decade. Upstream investment cuts this year (and next) will inevitably lead to slower production over the next decade. The same also applies to Iraq's electricity sector, where tariff reform has now become a critical necessity, given the unsustainable drag of subsidies and the disincentive they provide to private investors. Natural gas production, both from associated and free gas fields, has long been viewed as a secondary imperative to oil. But the increasing pressure on the electricity network, and the possibilities that a vibrant natural gas industry opens up for domestic industries is shifting the long-standing equation where gas plays a subordinate role to oil. The pressure on budgets will likely dent Iraq's considerable aspirations here, too, especially in the absence of investment reform that shifts the burden of capital allocation from the state towards the private sector.