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Why the listing of ADNOC gas matters. Cover story by Robin Mills.

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WHY THE LISTING OF ADNOC GAS MATTERS

Robin Mills • A version of this article appeared in *The National*, Feb. 26 '23 • COVER STORY



Of all the initial public offerings, many of energy sector companies, conducted in the UAE in recent years, the listing of Adnoc Gas is the biggest and most strategic.

The state company's gas processing unit will be valued at up to Dh186.5 billion (\$50.8 billion) when it lists about 4 per cent of its shares, with trading intended to start on March 13. More than the money, the company is crucial for the country's energy ambitions. The four previous Adnoc IPOs have covered fuel retail (Adnoc Distribution), drilling, petrochemicals (Borouge) and fertilisers (Fertiglobe). Their total market capitalisation today stands at about Dh215 billion, so Adnoc Gas will almost double the value of its parent's listed entities.

It will be comparable in value to large international companies such as Occidental, Eni and Woodside, and worth almost four times EQT, the largest gas-producing company in the US.

At the top of its valuation range, it will offer an attractive 6.4 per cent dividend yield.

Direct access for investors outside specialist oil and gas companies to the region's hydrocarbon reserves is almost unheard of.

Saudi Aramco, which carried out its own IPO in December 2019, is the exception but public shareholders own part of the parent company, which includes refining, petrochemical and other assets. Adnoc Gas does not offer upstream exposure, but it comes close. It processes gas from Adnoc's fields to remove valuable by-products such as liquefied petroleum gas (LPG, used for cooking), natural gas liquids employed in petrochemicals, condensate (a type of light oil) and sulphur.

The processed gas is reinjected into oilfields to improve recovery, sold to the domestic market, or liquefied for export by Adnoc LNG. So Adnoc Gas offers exposure to local as well as international commodity prices, after tax and a profit-sharing arrangement with its parent.

It enjoys low processing costs, just \$0.5 per million British thermal units, when international liquefied natural gas sells for about \$15 per MMBtu even after recent price drops.

The raw figures are imposing: drawing on nearly all the UAE's 290 trillion cubic feet of gas reserves, the world's seventh largest, demand will be at about 8.7 billion cubic feet per day by the late 2020s, which would equate to the world's ninth-largest production currently, with the UAE hot on the heels of Algeria in eighth.

The UAE intends to be capable of self-sufficiency in gas by 2030, which should be eminently achievable given Adnoc's planned production increases.

These include major new offshore projects, unconventional gas onshore, production from the Bab field, and higher associated gas derived from expanding oil production as the parent company moves towards its target of 5 million barrels per day capacity.

And that will allow more exports, crucial in a world market suddenly short of gas because of the obliteration of Russia's supplies to Europe.

With countries such as Pakistan turning to coal because of unaffordable LNG, more gas will help limit carbon dioxide emissions in Asia.

The planned LNG export plant at Fujairah is not part of Adnoc Gas's asset base currently, but it expects to acquire it from the parent when it is complete in about 2027, in addition to the existing facility on Das Island which will be expanded.

Building scale is essential for Adnoc's LNG business to be internationally competitive.

Gas requirements for domestic power generation will drop as nuclear and solar capacity come online, so increased consumption at home will depend on rising industrial use.

Although the IPO prospectus refers only in passing to hydrogen, the production of "blue" hydrogen or its derivatives ammonia and methanol from gas with carbon capture is likely to be another key strategic area of growth.

Gas is still a carbon-containing fuel, so for compatibility with the UAE's 2050 net-zero goal, Adnoc Gas needs to install carbon capture, limit methane leakage, improve energy efficiency and electrify its facilities with renewable and nuclear power.

That will be ever more important as its current gas purchase agreement with Adnoc moves towards 2047 and the expiry of its primary term, and investors grow ever more attentive to climate risks.

So Adnoc Gas appears a solid and relatively low-risk company, with good growth prospects, and a realistic lower-carbon proposition. After decades of absence of the region's main industry, the GCC stock exchanges now offer a range of different petroleum-related companies.

The continuing wave of GCC IPOs gives citizens, residents and international investors more of a stake in Gulf economies. Could any of its regional peers follow the Adnoc Gas template?

Aramco could, but it would be duplicative with its parent company listing. QatarEnergy is overwhelmingly a gas exporter, and neither it nor Bahrain's state oil company have shown any interest in listing. Kuwait Petroleum produces gas only for domestic use and is not set up commercially to be a public company.

There has been talk of an IPO of the gas network of Oman's OQ, but production and processing are complicated by several partnerships with international oil companies. For now, Adnoc Gas probably stands alone.

Within Adnoc itself, there are some other specialist units that could see offerings and that have sparked media speculation. Alternatively, it might pursue more partnerships or securitisations, as it has done for its refining and oil and gas pipeline units. But unless and until the company decides to give access to its upstream operations, Adnoc Gas will be the closest approach investors have to the nation's subsurface wealth.

SANCTIONS AND SLOWING INVESTMENT IN INFRASTRUCTURE MAY DENT RUSSIA'S OIL SECTOR

Robin Mills • *A version of this article appeared in The National, Feb. 19, '23*

"It was forced on them. They don't have the ability to keep up the production volumes because they don't have access to necessary technology." So said the EU's energy commissioner Kadri Simson in response to Russia's announcement that it would cut oil production in March by 500,000 barrels per day (bpd). But is this the real reason?

National oil industries can collapse for various non-technical reasons: war, sanctions, political breakdown. History offers at least four solid examples that might compare to Russia's current situation, excluding physical destruction such as that in Kuwait in 1990-91.

Iran's production reached its all-time high of slightly more than 6 million bpd in 1974. The revolution of 1978-79, strikes by oil workers and the invasion by Saddam Hussein's Iraq in 1980 brought it crashing down to 1.3 million bpd in 1981.

Post-war recovery was hampered by American sanctions and unattractive conditions for foreign investment, then by US presidents Obama and Trump's moves to cut off most of the country's oil exports. Nevertheless, despite ageing fields and infrastructure, and waves of civil unrest, production still hovers around 3.6 million bpd.

Iraq was also badly affected by wars. Production in the post-nationalisation glory years of the 1970s peaked at almost 3.7 million bpd in 1979. During the Iran-Iraq War, exports via the Gulf were cut by Iranian military action and Iran's ally Syria closed the pipeline through its territory. Output dwindled, partly recovered when a pipeline via Turkey was opened, then crashed to fewer than 300,000 bpd because of UN sanctions following the 1990 invasion of Kuwait.

The oil-for-food programme in the 1990s allowed for some recovery but the industry was starved of funds and equipment, then battered by looting and political chaos following the 2003 US-led invasion. Only after 2009 and the advent of major foreign investment could the situation improve, as Iraq passed its previous high in 2015 and reached a record of nearly 4.8 million bpd in 2019 before Covid struck. Today's Iraqi oil industry is almost entirely a post-2009 creation.

Venezuela is the most extraordinary case: without war or, until 2019, strict sanctions, it sabotaged itself. In the late 1990s, it challenged Saudi Arabia and its Opec colleagues with plans for rapid production growth, contributing to a price collapse. President Hugo Chavez, elected in December 1998, reinstated full co-operation with Opec. He fired 17,000 oil workers after a general strike of 2002-03 aimed at unseating him, ruining Petroleos de Venezuela, once an admired national company.

Expropriation of foreign projects, lack of investment, emigration, corruption, theft and sabotage decimated Venezuela's petroleum industry under Mr Chavez and his hand-picked successor Nicolas Maduro. US sanctions in early 2019, following another disputed presidential election, were the final straw. Record production in 1998 of more than 3.4 million bpd slumped to just 640,000 bpd in 2020.

Despite sanctions waivers to allow US companies to resume some operations, and greater openness to foreign involvement after an apparent change of heart in the Maduro administration, it seems unlikely that Venezuela's rusting industry, based on heavy, high-carbon oil, will ever truly recover.

Russia itself is the final example. As Thane Gustafson's prescient book *Crisis Amid Plenty* recounts, the Soviet oil industry of the late 1980s, when Russian output peaked at 11.4 million bpd, was already struggling with inefficiency, outdated technology and depleted fields.

During the post-Soviet time of troubles in the 1990s, the integrated business was broken up and most passed into the hands of "oligarchs", who fought messy corporate battles to grab more. Prices were low, investment and tax payments minimal.

When oil prices recovered — to the great good fortune of Vladimir Putin, who had become President in 2000 — the cleverest of the oligarchs had reinvented themselves as market-friendly entrepreneurs. Dismal output of merely 6 million bpd in the nadir of 1996 turned around as modern technology was applied to the heartland of West Siberia.

Then Mr Putin tamed or exiled those who threatened him politically, and reunited most of the oil and gas business under the state giants Rosneft and Gazprom, run by loyalists. Growth continued, but much more slowly, passing the Soviet-era record in 2018 and topping out at 11.7 million bpd in 2019.

These past cases tell us that temporary production drops, even physical destruction, can be reversed; the long-lasting degradation of a nation's petroleum industry comes from the loss of institutional capability, expertise and access to markets.

How does this apply to today's Russia? Its future expansion is reliant on unconventional resources and a new generation of fields in the Arctic offshore and remote East Siberia, requiring vast investment in basic infrastructure. That will not be forthcoming as long as the war in Ukraine continues, European sanctions close off Russia's best market and international expertise is restricted. In July, Swiss-based trader Trafigura exited its investment in Vostok Oil, an \$85 billion, 2 million bpd East Siberian project which was to have driven the next phase of Russian output growth.

Nevertheless, Russian drilling was at a decade's high last year. Capable companies and people remain active; the country has been producing below capacity since April 2020 because of compliance with the Opec agreement. There is no sign of an imminent decline in output and Ms Simson's characterisation of the situation is misleading.

If Russia does indeed cut production, it is because it can sell neither the crude nor the associated refined products, in the face of the EU's ban and difficulty accessing enough tankers for the long voyages to India and China.

The Kremlin will attempt to extract more cash from the industry to fund its war — as it has already done by raising the price benchmark used for taxation and receiving a large special dividend from Gazprom. That and sanctions will eat away at the productive base over time.

A slow decline in Russian output is favourable for its Opec partners, who can gain market share. It also aligns with European and American intent, to limit Russian government revenue, avoid a price spike and, in the longer term, to transition to a lower-carbon, less oil-intensive economy.

As Mr Gustafson's sequel *Klimat* argued in 2021, Russia's petroleum business already faced swelling challenges in the 2030s and beyond. It will not collapse like 1990s Iraq or 2000s Venezuela, or even its own earlier incarnation. But the confrontation with the West has dramatically accelerated its reckoning with a difficult destiny.

The EU Ban on Russian Oil: Crude Implications for the Middle East

Robin Mills • A version of this article appeared in the *Columbia Center on Global Energy Policy*, Feb. 15, '23

It has been over two months since the European Union (EU) ban on Russian crude oil^[i] entered into force, triggering friction in oil markets and petroleum supply chains. The ban takes effect against major uncertainties, especially the speed and size of recovery in Chinese demand and the global economic outlook. Three key players each have decisions to make in response: Will the EU and US impose further restrictions on Russian oil (in addition to the price cap now in force for more than two months and the product ban that came into effect on February 5)? Will Russia be able and willing to redirect all or most flows from Europe to Asia in the face of the G7-inspired price cap and EU insurance ban? How will the oil policies of the Organization of the Petroleum Exporting Countries (OPEC), the group with 10 additional oil exporters (known as OPEC+), and Saudi Arabia evolve in response?

The Middle East, as the world's key oil-exporting region and leader, remains central to the market's reaction and outcomes. This three-part series covers crude oil (this commentary), refined oil products (Part 2) and geopolitical implications (Part 3) to understand the

impact of the war on oil flows and pricing since February 2022 and to extract clues to the future reactions of exporters, traders, and refiners.

Six key conclusions emerge for crude oil:

1. Annual term contracts with Asian refiners will initially protect Middle Eastern exporters from Russian competition. But in the longer term, the Middle East has to consider how much it is willing to be displaced from core Asian growth markets into shrinking European markets – or, in the case of Iran, how to retain its sole remaining customer without further discounting.
2. Asia – overwhelmingly India and China – has become the main sink for sanctioned crudes, giving it the ability to extract sizeable discounts from Russia.
3. Diesel-rich, lower-sulphur crudes have benefited disproportionately in sales to Europe, benefiting Saudi Arabia in particular. But the disappearance of Russia's main grade, Urals, from Europe creates a puzzle for Middle Eastern exporters as to how to price their European sales.
4. Middle Eastern petroleum exporters have gained overall from the Russia shock, mainly in the form of higher prices. They have also benefited from opportunities to refine, store, and redistribute Russian crude and can continue to benefit from them going forward.
5. The core Gulf exporters will be balancers-in-chief in Europe.
6. The Middle East, and the OPEC+ relationship, will be critical to Russia's strategic resilience.

The First Reshuffle

Prior to Russia's invasion of Ukraine on February 24, 2022, Urals^[ii]—Russia's key crude export grade—served as a baseload for Europe's refineries, with Russian crude historically making up around 20 percent of Europe's crude diet. Prior to the EU's December 2022 ban, refiner self-sanctioning played a significant role in driving down Russia's exports to Europe. Between March and November 2022, Russian crude exports to the EU averaged approximately 1.78 million barrels per day (Mb/d), roughly 0.7 Mb/d lower than the January–February 2022 (preinvasion) average and 0.3 Mb/d lower than the 2021 average.

During 2022, as a replacement, the EU turned to a variety of sources, particularly the Middle East, West Africa, the US, and Norway. The role of West African producers, such as Nigeria, as “swing” players (given their ample spot liquidity and destination-free status) enabled traders to redirect their volumes to Europe flexibly; likewise, Norway's Johan Sverdrup, a key Atlantic grade that was previously often exported to China, is now staying local to be bid on by European refiners, as the medium-sour grade is a healthy substitute for Urals.^[iii] The EU's overall crude intake actually increased with ongoing demand recovery and higher runs on the back of strong middle distillate refining margins.

Among the key Middle Eastern players, Iraq and Saudi Arabia have made the biggest inroads, primarily via their grades of Basrah Medium ^[iv] and Arab Light, ^[v] respectively. Although not an exact match for Urals, Arab Light in particular has benefited from a higher yield of diesel and lower fuel oil yield (see below). Production targets under the OPEC+ agreement ^[vi] (grouping OPEC, Russia, and several other non-OPEC states) steadily increased between May 2021 and when the cuts were introduced in October and November 2022. ^[vii] Kurdish Blend Test (KBT), ^[viii] exported by the Kurdistan Region of Iraq, has made the least inroads, partly due to internal Iraqi politics ^[ix] and partly because of competition from Russian

crude in the Mediterranean, which will ease now that the EU ban is in force.

The largest markets where Middle Eastern crude has increased market share are Italy, the Netherlands, Lithuania, and Poland—the latter a country of strategic focus for Saudi Aramco, which has expanded its downstream footprint there in recent years.^[xi] Iraq, which supplied around 600 kb/d of crude under term contracts to Europe prior to the invasion, has also increased market share in Italy, particularly with Italian refiner Saras, a major term client of Iraq's State Oil Marketing Organisation (SOMO).^[xii] An additional outlet for Middle Eastern crude in Italy may reopen when the status of the ISAB refinery in Sicily, owned by Russian company Lukoil, is resolved. ISAB ramped up its purchases of Russian crude following the start of the war, but after the Italian government intervened to assure continuity of supply following the EU ban, ISAB was sold to a private equity group backed by the trading company Trafigura.^[xiii]

The increases in Saudi and Iraqi exports to Europe were driven not only by the easing of OPEC+ cuts throughout 2022 but also by the displacement effect of increased Russian Urals heading to Asia since the outbreak of the war.

This redirection of Urals to Asia has had numerous effects on Middle Eastern players, most importantly:

- 1. Displacement from Asian and other markets:** Middle Eastern crude was displaced in three key markets: India, China, and Turkey, which, for the purposes of this discussion, are considered separate from Asia, Europe, and the Middle East. India, where approximately 450 kb/d of imports were cut (March–October 2022 versus January–February 2022 average), was the most important in this regard. For India's private refiners, which buy Russian crude on a delivered basis (avoiding the need to arrange insurance), the attractive pricing of Urals played a major role. Nevertheless, state-owned Indian refiners such as Indian Oil Corporation and Bharat Petroleum and privately owned market leader Reliance^[xiv] have a string of annual term contracts with key players such as Iraq, Saudi Arabia, and the United Arab Emirates (UAE), placing an effective ceiling on Russia's ability to displace Middle Eastern crude from India's refining slate radically.

Chinese buying patterns are similar. Most incremental purchases of Russian crude from China, up to an additional 300 kb/d of Urals, have been made by private independent refiners. In turn, their crude requirements have been limited by restrictions on product export quotas and weak domestic demand amid COVID-related lockdowns that continued until December 2022.^[xv] Concerns have also been growing among Chinese private refiners about the credit profile of the new breed of trading houses marketing Russian crude,^[xvi] as major trading firms have exited. Likewise, key Chinese state-owned players such as China National Offshore Oil Corporation and China International United Petroleum and Chemical Co (UNIPEC) highly prize their term contracts with Middle Eastern players. Indeed, UNIPEC—one of the most active players in the Middle Eastern spot market—was previously burnt when it tried, to its detriment, to pressure Saudi Aramco on its term pricing in 2018, cutting the Saudi giant by 40 percent in certain months^[xvii]—an event met with disbelief by most Asian players at the time. This came at a time when Washington-Beijing trade tensions might have limited Chinese purchases of US crude, Libyan supplies were at

risk from insecurity, and the Trump administration was tightening sanctions on Iran, all of which threatened UNIPEC's alternative supplies and reemphasized the importance of access to stable Gulf Corporation Council volumes.

Saudi Aramco's long-term contracts typically allow for monthly changes of up to plus or minus 10 percent—a clause known as “operational tolerance,”^[xviii] usually for refinery maintenance or seasonal purposes. The UAE's Abu Dhabi National Oil Company (ADNOC) adjustment is lower, at 5 percent.^[xix] These tolerances allow some cuts on term liftings to accommodate additional Russian purchases but only to a limited extent. The major players in India, China, and other leading Asian markets will likely wish to renew most of their term contracts given that their refineries are optimized for Middle Eastern crudes, they have good long-term relations with their Middle Eastern suppliers, and they would be wary of overdependence on a volatile supplier such as Russia. Some inducements may be on offer in terms of shipping/freight adjustments.

The third major party in stepping up Russian crude imports is Turkey. The main refiners, Tüpras and STAR (State Oil Company of the Republic of Azerbaijan [SOCAR] Turkey Aegean Oil Refinery), owned by Azerbaijan's state company SOCAR, increased purchases of Urals and Siberian Light grades, with average Turkish import volumes from Russia rising from about 100 kb/d before the war to 300 kb/d currently. The main Middle Eastern country affected by this development was Iraq (including the Kurdistan region), whose sales to Turkey were cut, as were exports from Johan Sverdrup (Norway) and West Africa.

- 2. Pressure on Middle Eastern spot pricing:** Growing volumes of Russian Urals to Asia and other non-European markets have also put pressure on the valuations of Middle Eastern spot crudes. Middle Eastern national oil companies (NOCs) price their crude to Asia under official selling prices (OSPs), defined as a fixed per-barrel monthly premium or discount to a reference. This benchmark is typically Dubai, made up of a basket of Middle Eastern spot crudes (namely, Dubai, Oman, the UAE's Murban and Upper Zakum, and Qatar's Al Shaheen).^[xx] One impact of the growing flow of Russian crude to Asia has been the flattening of the forward curve for Dubai. In other words, the spread between the prompt Dubai contract and futures two months ahead (otherwise known as the Dubai M1–M3 spread) reduced as increased Russian crude headed to Asia, Chinese demand weakened, and more Russian fuel oil was redirected East of Suez (hitting the pricing of Middle Eastern crudes with a high fuel oil yield). The increased pressure on the medium sour market in Asia was also reflected in the widening spread between Saudi Arab Light and Arab Medium OSPs (Arab Medium is similar in quality to Urals). Between January and July 2022, the differential between the two averaged USD \$0.10 per barrel (b), but as more Urals headed to Asia and weak demand in China continued, the spread widened dramatically to an average of USD \$2.1/b between August and October 2022. This benefited some of the most complex refineries in Asia (particularly those in India and South Korea), which can

convert more of the medium- and heavy-gravity crudes to valuable products such as diesel.

The Next Wave

Since the EU embargo on Russian seaborne crude imports, most Russian crude entering Europe has been via pipeline (estimated to be around 700 kb/d) in addition to a small amount of seaborne volume (around 200 kb/d to Bulgaria, the only country allowed to import seaborne volumes until the end of 2024). Of the 700 kb/d currently transiting the Druzhba pipeline, about 0.3–0.5 Mb/d can continue under exemptions to central/southeast European countries, such as Hungary, that argue they lack access to alternatives. Germany and Poland have agreed not to use the northern leg of the Druzhba pipeline, which runs through Belarus (avoiding Ukraine), for Russian crude despite the exemptions,^[xx] though they have sought to deliver Kazakh crude through Druzhba (potential transactions that Russia will probably find ways to prevent).^[xxi] From a 2021 average of 2.1m b/d of crude imports from Russia, going forward, Europe will now likely take in only around 300-400 kb/d of Russian crude – a dramatic drop.

The EU/G7's price cap on Russian crude, which is set at \$60/b, came into effect in early December 2022.^[xxii] The workability of the cap—akin to a Western-imposed OSP on Russian crude—is already being questioned, however. This is not surprising. Even prior to its introduction, the cap faced numerous obstacles: differences between the US and EU over where the cap should be set; how it will be policed given that over-the-counter trade transactions are “off the books”; the fact that it is not dynamic^[xxiii] (meaning it does not move automatically with the flat price or shifts in crude differentials and benchmark values, though it can be adjusted over time by further decisions^[xxiv]); and which of a growing number of potential exemptions should be granted.

The spread between the price cap and the outright price of Urals in the market has also been influenced by a range of factors: set the cap too low and Russia will lack any incentive to participate, raising the risk of unilateral cuts; set the price too high and the cap becomes redundant, acting simply as a nondynamic OSP that fails to deprive the Kremlin of revenue while making oil supply chains less efficient and even reducing the current discounts that customers are demanding. The workability of the price cap is also indirectly influenced by OPEC+ policy. By protecting an implicit floor price, Saudi Arabia has made it difficult for the West to introduce a price cap far below that level, as such a move changes the “price cap band”: a price cap too far below OPEC+'s implied floor price of circa USD \$80/b^[xxv] will increase the risk of unilateral cuts by Russia. It is also worth noting that Russian crude sales to Asia are on a delivered rather than a free on board (FOB) basis—a situation that the price cap pricing basis does not entirely capture, given that delivered pricing terms between buyer and seller remain opaque and difficult to capture (e.g., payment terms, pricing terms, and shipping costs).

For now, the disputes over the principle and practicalities of a cap mean that it appears watered down to the point of ineffectiveness. However, the mere existence of such a mechanism could be concerning for both Russia and OPEC+. It is too early to make a call on the effectiveness of the price cap; however, as pressures grow on Russia's supply chain, Russia will face a choice between “self-sanctioning” by cutting exports deliberately, as announced on February 10, 2023 (by 500 kb/d), avoiding the cap (at a higher cost and eventually with some unavoidable loss of exports), or accepting the principle. Though it would recoup part if not all of the cost of a voluntary export cut in higher prices—how much would depend critically on the response of its OPEC+ colleagues—if and when it accepted the principle of a price cap even tacitly, and if a cap that is

set “too high” (i.e., at or above current discounted Russian prices) operates without major market disruption, the G7 would have the option to lower the cap and/or tighten enforcement.^[xxvi]

Saudi Arabia would also be very wary of an effective price cap, which it fears might one day be turned against it or other OPEC+ members in a kind of “buyers' cartel,” or even as a way to capture rents in a climate-conscious world with long-term shrinking oil demand.

Clearly, the Middle East's importance is growing in the current market. The gross quantity the Middle East produces and exports is crucial. But beyond that, decisions on target markets, pricing, and crude trade will be influential in determining how effective sanctions are and how much pain Europe and key Asian markets suffer in the process.

As Russia now gears to shift yet more of its crude east, there are six key strategic issues to watch for in the region:

1. **The Middle East will initially be protected from Russian competition via term contracts with Asian refiners.** As Russian volumes increasingly head to Asia (particularly India and China), the Middle East should find protection via its term contracts that were negotiated on either an annual or quarterly basis. Most flexibility to accommodate growing Russian barrels will come from either displacement of other spot barrels (e.g., West Africa and the US) or from higher refinery runs in Asia and the Middle East itself, particularly given that demand in Asia is expected to grow by 1.3–1.4 Mb/d year over year in 2023.^[xxvii]

However, in the longer term, the Middle East will have to consider how far it is willing to be shunted out of the key Asian growth markets—on which companies such as Aramco have lavished major attention and capital spending on refining and petrochemical joint ventures—in favor of a shrinking market in Europe. This depends in part on how successfully Russia maintains production capacity over the next few years amid bans on oil field investment and technology.^[xxviii]

2. **Asia has now become an even bigger sink for sanctioned crudes, giving China and India significant pricing power.** Both are able to extract sizeable discounts from Russia, partly explaining why Urals has been trading at attractive prices on a delivered basis. China in particular also has the ability to modulate between Russian, Iranian, and Venezuelan crude, the three main sanctioned streams.
3. **Not all Middle Eastern barrels are equal for Europe.** Although the Middle East acts as a baseload for Asia, incremental volumes backed out of Asia will inevitably find a home in Europe, presenting both opportunities and challenges. Europe's ongoing diesel shortage has put the spotlight on its refining system, which, compared to demand patterns in the European market, is more heavily geared for gasoline than for gas oil/diesel. The massive spread between diesel and gasoline cracks^[xxix] in Europe has meant that Middle Eastern crudes, which have a higher diesel yield, are more attractive than grades with a higher fuel oil yield. Prior to Russia's invasion of Ukraine, European refiners could make approximately \$17/b of diesel. Now that figure is around \$30/b, while margins for heavy fuel oil and naphtha (light petrochemical feedstock) are negative. This

is particularly a problem for Europe, though not exclusively so, and it would be worsened by deeper cuts in production of diesel-rich Russian and/or Gulf crudes (due to further sanctions or OPEC+ quota reductions).

This operational reality is reflected in Saudi versus Iraq OSPs for Europe (see Figures 9 and 10), as OSPs for more diesel-rich Saudi crudes have risen since February, especially for the lighter grades, while Iraqi OSPs have fallen sharply. The premium for lower sulfur, distillate-rich grades is also being reinforced by the high cost of desulfurization (due to high hydrogen costs, impacted by elevated natural gas prices and the cost of EU emissions permits). As a general rule of thumb, every \$10/metric million British thermal unit increase in the gas price translates to a \$1–\$1.5/b increase in the variable hydrocracker cost.^[xxx] In all likelihood, grades such as Iraq's Basrah Medium will be blended with lighter grades (e.g., the US's West Texas Intermediate) to address any major crude quality imbalances building up in the European refining system, though this depends on the level of Iraq's compliance with production cuts.

In addition, with Urals no longer reflecting the economics of European refining, the Middle East has lost a key marker for pricing sour crude exports to Europe. For decades, Middle Eastern exporters looked at how Urals—the largest spot grade trading in the European market—priced against Dated Brent to assess how OSPs to Europe should be set. The disappearance of Urals has deprived Moscow of this privileged position in Middle East pricing to Europe, creating new puzzles for Middle Eastern marketing teams.

- 4. The Middle East could be a key beneficiary of the trade flow dislocation.** A recent example of a cargo of Russian crude entering the UAE's Ruwais refinery,^[xxxi] which can refine up to 420 kb/d of heavier, sourer crudes instead of the more valuable Murban grade due to ADNOC's crude flexibility project,^[xxxii] provides a good example of the potential optimization by Middle Eastern NOCs in response to trade flow dislocations. Although G7 rules may eventually prevent Middle Eastern countries from reexporting Russia-derived products to Europe, they could direct these to their domestic market while exporting products refined from their own crude. Likewise, the influx of Russian fuel oil to the UAE's Fujairah Oil Terminal has meant that Fujairah has become Russia's new Rotterdam—a center for storage, blending, and reexport. It is expected that during the summer of 2023, when power generation peaks seasonally, Middle East producers (primarily Saudi Arabia, Iraq, and Kuwait) will benefit from the ample availability of discounted Russian fuel oil, freeing up room for valuable crude exports, particularly if H2 demand sees market balances tighten considerably in 2023 as expected.^[xxxiii]
- 5. The Middle East has the potential to play the role of balancer in chief in Europe.** It is expected that as more Russian crude is redirected to Asia, Europe will find cover from key candidates such as West Africa and Norway, who will be displaced from Asia (particularly given the longer voyages and freight costs). Likewise, US production growth is expected to reach between 800 kb/d and 1 Mb/d

in 2023.^[xxxiv] Nevertheless, in scenarios where market tightness occurs and OPEC+ has control over the market, players such as Saudi Arabia, the UAE, and Iraq can serve as balancers, helping backfill Europe's import requirements. This is particularly the case given the vulnerabilities of key exporters such as Libya^[xxxv] and Nigeria,^[xxxvi] whose exports can be highly volatile, and Iran, where tight sanctions severely limit oil sales and repeated major antigovernment protests could at some point interrupt production.^[xxxvii]

- 6. This balancing act involves plugging not only crude trade imbalances but also geopolitical ones.** As pressure on Russia's oil supply chain intensifies in the coming months, the Middle East will be critical to Russia's resilience (reinforcing the Middle East's strategic importance). Most Russian trading houses have relocated to the UAE; Iran, despite facing pressure from Russian crude hitting its key market in China, has offered its tanker fleet to support Russian oil movements as well as military support in Ukraine; and OPEC+, in which Russia is a key decision maker, is only set to grow in importance this year. So far, Riyadh and Moscow remain closely aligned. Saudi Arabia's market power has grown significantly as Saudi and Russian production profiles eventually diverge. However, some key risks remain for Saudi Arabia going forward: in a scenario where Russia decides to cut output unilaterally to avoid the price cap – as indeed it has just announced it will – the Kingdom may decide, also unilaterally or with the UAE, to offset this to avoid a price spike that would damage demand. However, with balances expected to tighten significantly in Q3 2023, Russia may seek to veto a move by players such as Saudi Arabia, the UAE, and Iraq to increase OPEC+ production targets, reigniting tensions between Saudi Arabia and the US or requiring Riyadh to break the OPEC+ framework.

For now, the Middle East crude exporters have gained overall from the Russia shock, mainly via higher prices. They have adapted to new competition, moderate loss of market share in India has been compensated for by higher sales to Europe, OSPs have shown increase, and Middle East players themselves can benefit from using, refining, and trading Russian oil. Iran is probably the exception because of the greater competition in its only remaining sizeable market, China, although it has managed to boost exports recently.

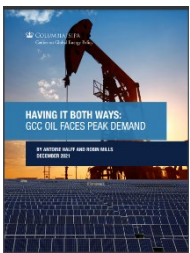
However, the more stringent measures on Russia have not yet shown their full effect. As the situation drags on, the Russian position in OPEC+ could become a burden by, for instance, preventing the organization from increasing output targets even as its own exports drop. Competition from Russian barrels in Asia complicates pricing for Asian term clients as discounted Russian crude puts pressure on spot valuations. Setting optimal OSPs to maximize pricing while defending market share has become trickier. All of this could very well give rise to Saudi-Russian tensions, or at least to Saudi Arabia's prized oil market flexibility being compromised by the need to accommodate Moscow. As Russia and Saudi production profiles diverge over time, OPEC+ power relations will likely shift, opening a potentially new chapter for the organization.



THE UAE'S ROLE IN THE GLOBAL HYDROGEN ECONOMY

Author By: Robin Mills and Julio Friedmann, along with Maryam Salman and Maryem El Farsaoui

The UAE is well-placed to take an early-mover advantage in global hydrogen production and is pursuing a balanced strategy covering both 'blue' and 'green' hydrogen. The UAE and its corporate entities have been highly active since late 2020 in developing global partnerships to expand the local hydrogen value chain. This report presents an analysis of the hydrogen industry in the UAE covering strategic opportunity, market development, projects and partnerships, and cost-competitiveness. Read the full report [here](#)



HAVING IT BOTH WAYS: GCC OIL FACES PEAK DEMAND

Author By: Antoine Halff and Robin Mills

This paper, part of the work by Columbia University's Center on Global Energy Policy on oil and Gas and the energy transition, examines two broad actions being taken by petrostates to remain relevant in a decarbonizing world: demand defense and demand creation. It also focuses on global efforts to address climate change offering difficult choices for the oil- and natural gas- reliant economies of the GCC. Read the full report [here](#)

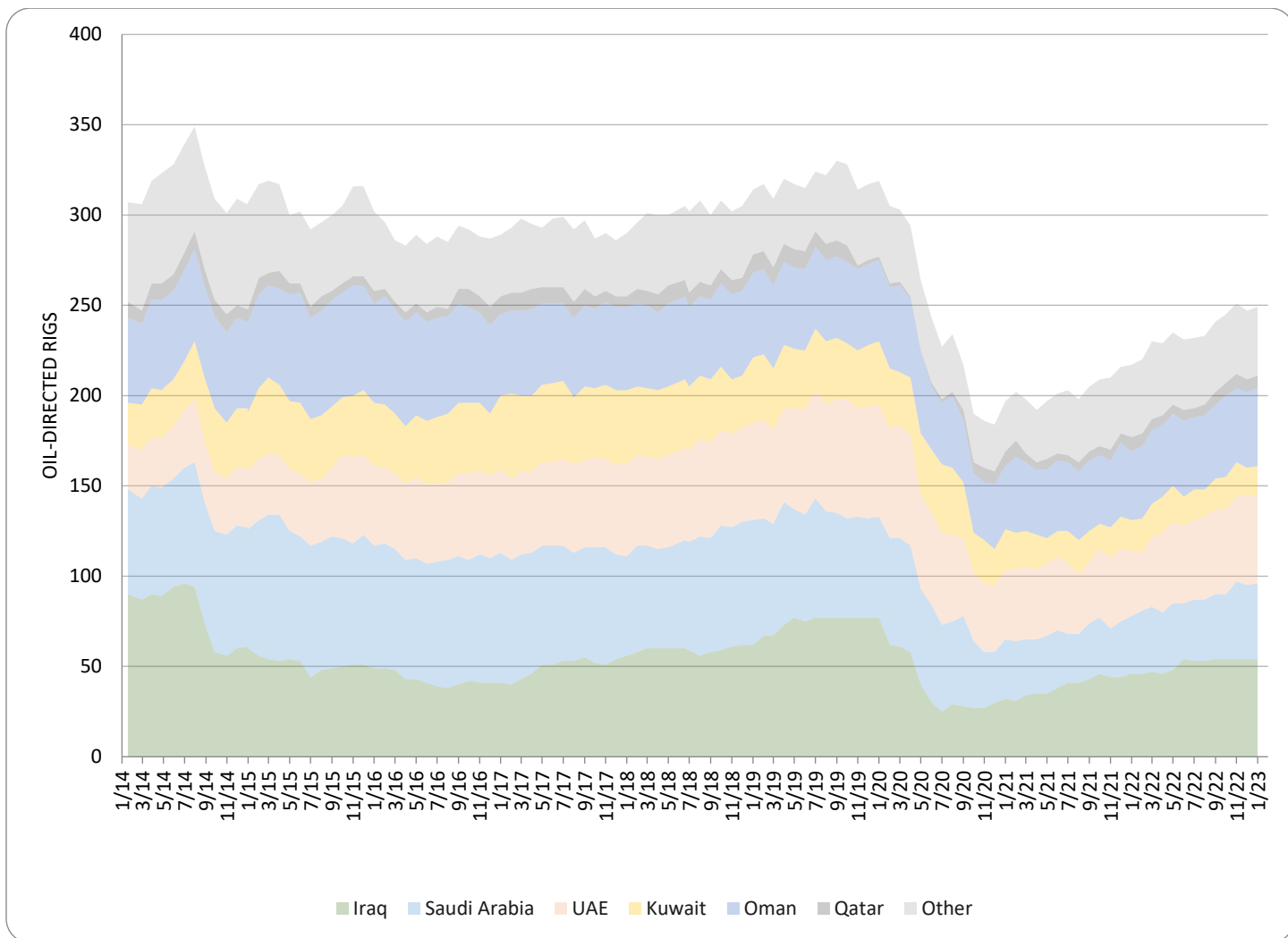


ENERGY THIS WEEK, THE NATIONAL NEWSLETTER

Author By: Robin Mills

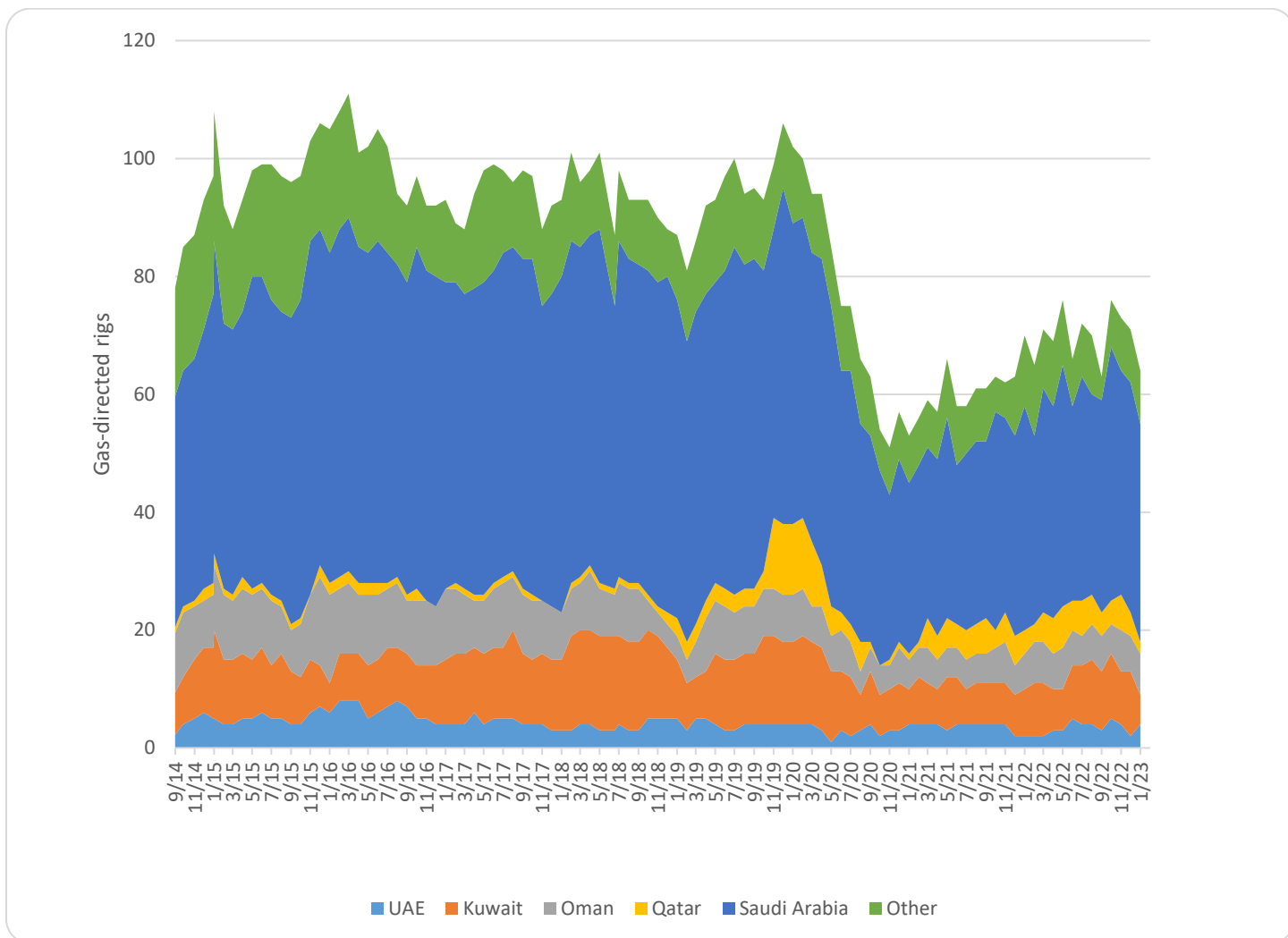
Energy this Week is a weekly newsletter authored by Robin Mills, published every Wednesday. Some of the topics covered under the latest newsletter are: the debate continues over energy sector underinvestment, cryptocurrencies face energy challenges, forecasters see a short-term oil surplus – are they correct? 'A new global energy economy is emerging'. Read and subscribe to the Newsletters [here](#)

RIG COUNT SNAPSHOT: OIL



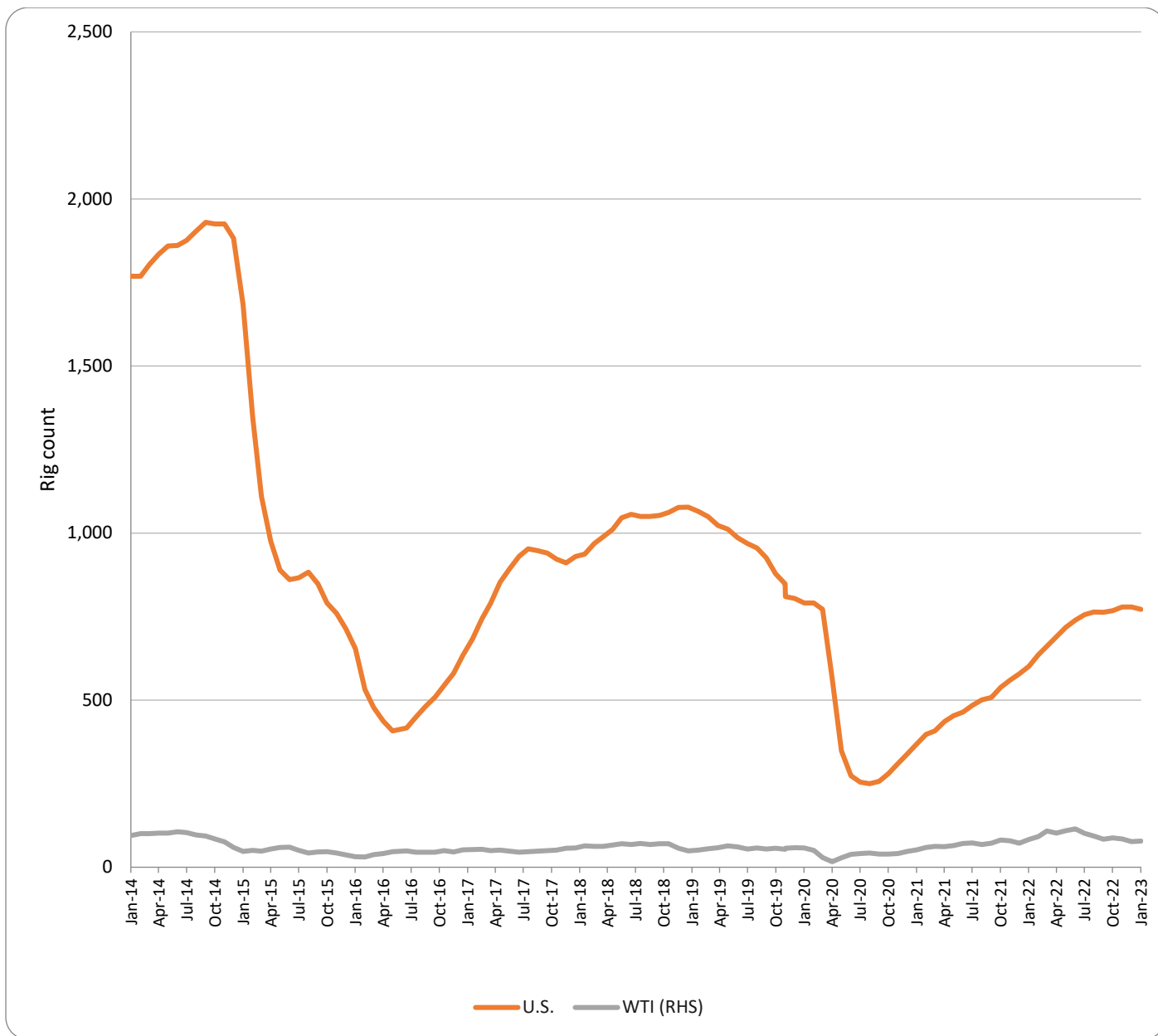
- Total Middle East rig count dropped by -5 to 318 in January as OPEC countries agree to cut production.
- Iran had a two-month high in oil production during November and December, with overall exports hitting 1.23 Mb/d in November 2022 and dropping down to 1 Mb/d in December. Production however dropped slightly from 2.559 Mb/d in December 2022 to 2.577 Mb/d in January 2023. Exports continue to surge.
- Iraq saw no change in its oil rig count since September 2022 (standing at 54); however it expects to reduce this count as it shuts down some production to match its required OPEC cuts.
- UAE's oil rig count decreased by -2 to a total of 48 in January as it braces to cut production.
- Kuwait's rig count bumped up from 15 to 17 in January, however rig count has been fluctuating all year long.
- Saudi Arabia's rig counts in November and December reached 43 and 41 respectively, the highest since September 2022. However rig count dropped by -1 to 42 in January.
- Oman's oil rig count increased by 1 reaching 43 in January, lower than but close to the stable value of 45 pre-pandemic.

RIG COUNT SNAPSHOT: GAS



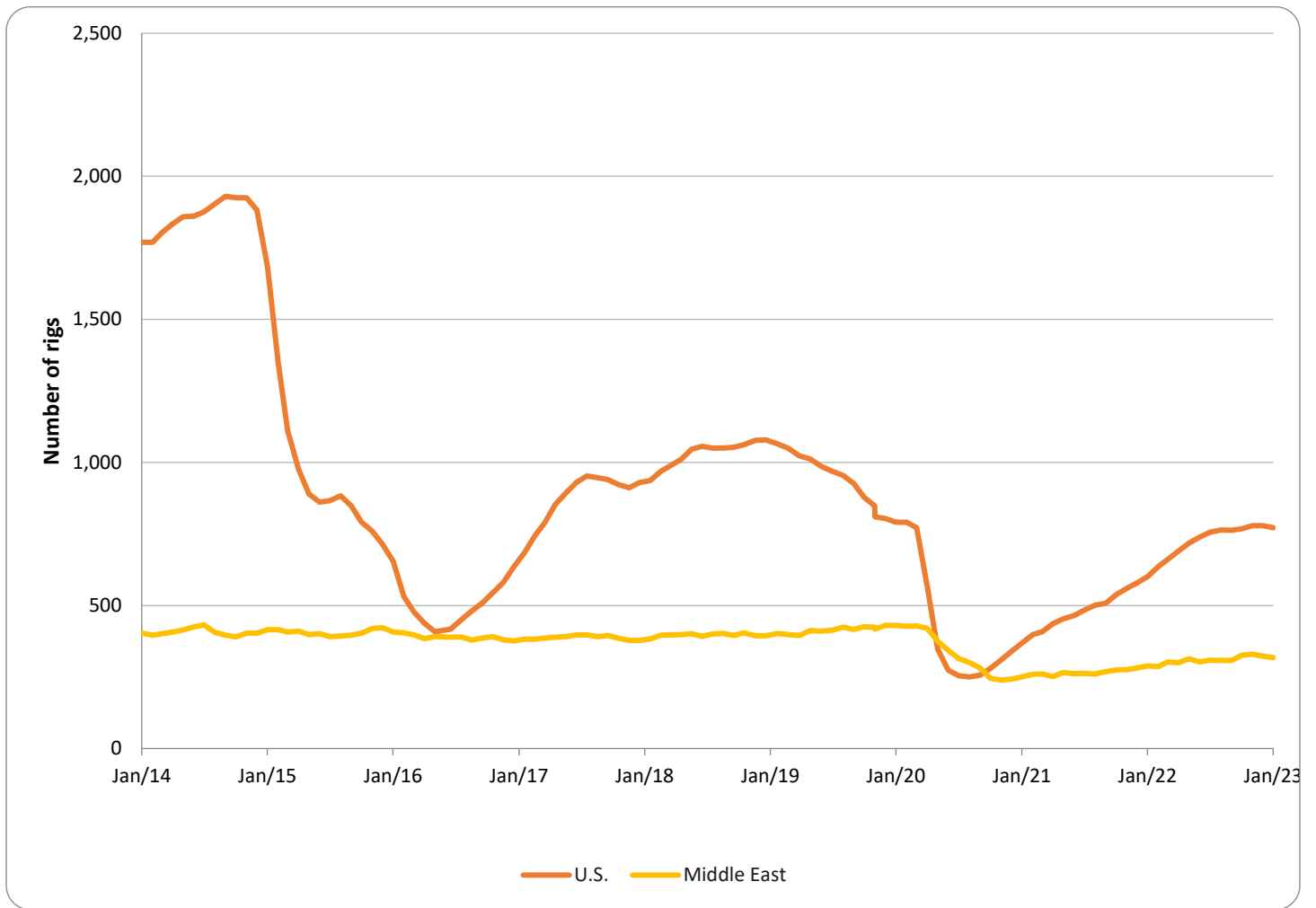
- The Middle East's overall gas rig saw a sudden -8 drop from 73 to 65 in January but still higher than 51 in November 2020. This is still much lower than the pre-Covid average of 99.6 in 2019.
- Oman's rig count increased to 7 in January as renewal of LNG will likely increase the count in 2023.
- After having reached its highest count since 2020, Kuwait's gas rig count dropped by -6 to 5.
- The UAE's January gas rig count is back up at 4 rigs. ADNOC's new LNG plant in Fujairah aims to bump its production up to 15.6 Mtpa by 2028 and will require additional upstream gas.
- Qatar rig count continues dropping by -2 since November, reaching a total count of 2, its lowest since March 2021. However it is likely to rise as new upstream developments of North Field are required to meet its 2026-7 LNG export expansion.
- Saudi Arabia's rig count decreased by -2 in January to 37; these values are lower than pre-Covid. Saudi Arabia plans to develop its Jafurah shale gas to 2 Bcf/d of gas, 418 MMcf/d of ethane and 630 kboe/d of gas liquids as part of its 2030 plan to cut the use of oil in power generation.

RIGS VERSUS OIL PRICES: US RIGS & WTI



- US rig count dropped to 753 in February, the lowest it has been since July 2022.
- Oil Rig count changes are as follows: a -1 m-o-m drop in the Barnett basin, -1 at the DJ-Niobrara, Eagle Ford, and Haynesville rigs, and a -4 decrease in the Permian rigs. There were no changes in Utica and Williston (Bakken, Three Forks); meanwhile the Cana Woodford has a +5 gain.
- Gas rig counts are expected to further drop this year to avoid oversupplying the market with overall gas production having risen by 466mn cfd in February while Henry Hub prices have dropped sharply.

RIG COUNT: US & MIDDLE EAST



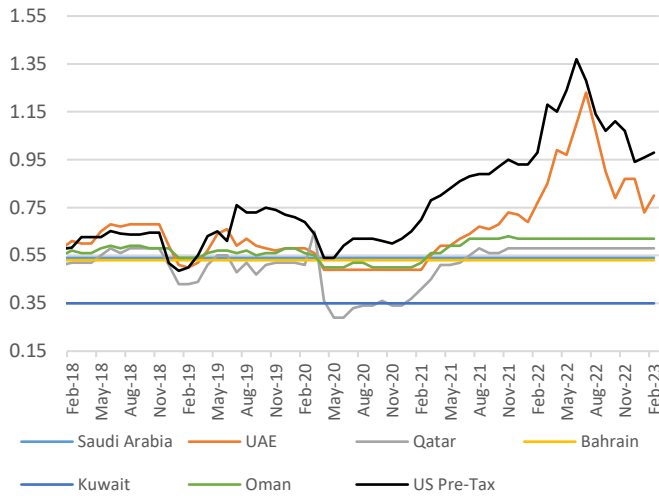
- US Offshore rig count rises from 13 to 17; however overall rig count decreases -19 m-o-m in February. Rig cuts were mainly from gas although intended production was to increase to 100.27bn cfd this year. Low gas prices may result in further cuts.
- Overall rig count in the Middle East decreased by 11 with 8 being gas rigs and total count standing at 318 as OPEC countries aim to comply with agreed production cuts.

FUEL PRICES & SUBSIDY REFORMS

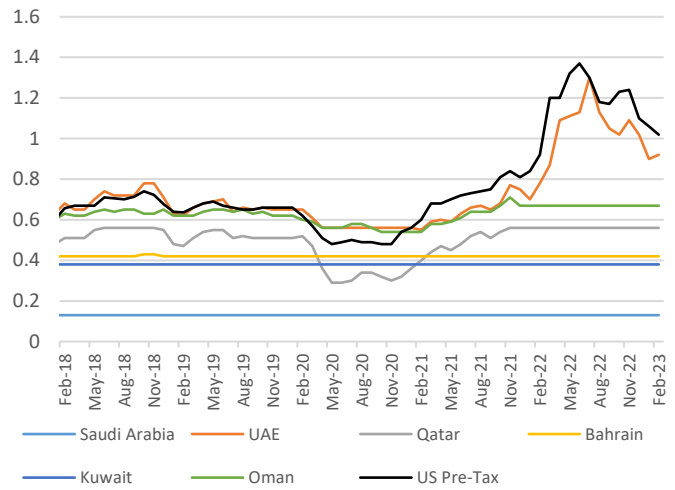
- In the UAE, gasoline increased from \$0.73 last month to \$0.80 per litre this month. Diesel saw a slight increase from \$0.90 to \$0.92 per litre.
- In Qatar, January prices for gasoline and diesel have been set at \$0.58 and \$0.56 per litre respectively since November 2021 and maintained since.
- In Oman, gasoline and diesel prices have not changed since last month, set at \$0.62 and \$0.67 per litre respectively. This marks 14 months of unchanged prices.
- In Saudi Arabia, gasoline and diesel prices have not changed since last month, set at \$0.62 and \$0.20 per litre respectively.

The following charts represent the prices of gasoline 95 and diesel (\$/litre) till February 2023 in the GCC countries.

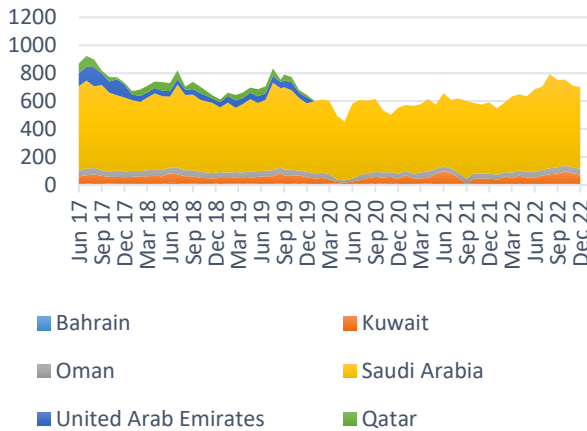
GASOLINE PRICES \$ Litre



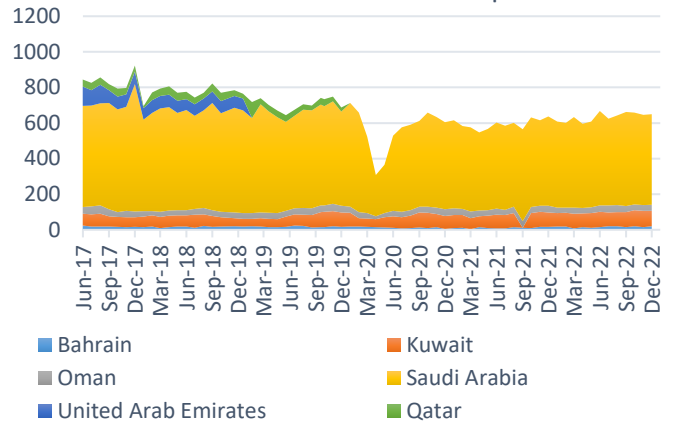
DIESEL PRICES \$ Litre



DIESEL DEMAND kbpd



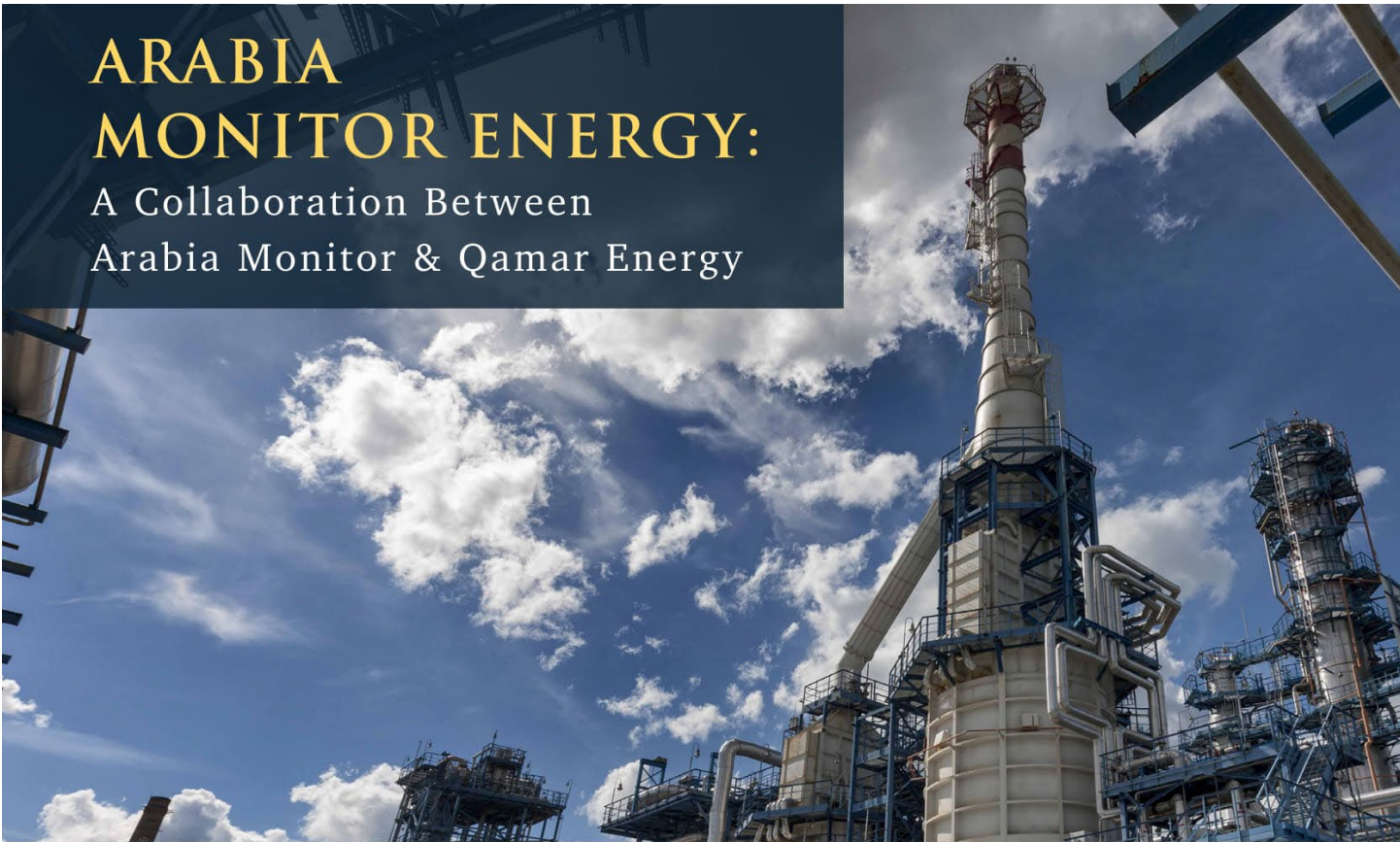
GASOLINE DEMAND kbpd



Note: JODI Bahrain, Kuwait, and Saudi Arabia gasoline and diesel figures are unavailable for February 2023

ARABIA MONITOR ENERGY:

A Collaboration Between
Arabia Monitor & Qamar Energy



ARABIA MONITOR ENERGY

Oil and gas tensions in the Middle East continue to influence the volatility of the world's energy markets. The Arabia Monitor Energy, a novel collaborative effort by Qamar Energy and Arabia Monitor, combines macroeconomics, geopolitics and energy intelligence to explain what the region's energy geo-economics mean for business.

WHAT SETS IT APART?

1. INSIDE OPEC

Focussed assessment of the month's OPEC developments, policy advancements and strategies.

2. NOC & IOC ANALYSES

Examination of factors affecting NOC and IOC policies, and their impact on regional diversification schemes.

3. SPOTLIGHT THIS MONTH

Targeted reading of the geopolitical, macroeconomic and energy landscape of a MENA country utilising our specialised energy intel.

4. SCENARIOS TO WATCH

Detailed forecast of global oil developments and their impact on the risks and opportunities for MENA's oil production.

5. STRATEGIC IMPLICATIONS

Concise summary of major oil trends and their effect on investment strategies under bearish, bullish, and wobble scenarios.

6. OUTLOOK FOR THE YEAR

Cohesive outlook of the oil production, gas production, renewable energy projects, and geopolitics of key MENA countries.

WHO BENEFITS?

ENERGY TRADERS

- What factors will contribute to oil and gas price fluctuations?
- What is the outlook for oil and gas pricing?
- What is the outlook for OPEC's production and export strategy?
- How are NOCs adapting their oil marketing strategies?

INVESTMENT AND RISK ANALYSIS

- What are the operational risks and investment opportunities in MENA?
- How do economics, politics, government policy changes, production and export bottlenecks contribute to risk mitigation?

UPSTREAM FIRMS

- What are the chief economic, political and fiscal regime factors driving/limiting upstream investment decisions and progress?
- What are the oil supply outlooks for the countries by project?

DOWNSTREAM FIRMS

- What are the demand challenges, patterns, and trends for oil and oil products?

NATIONAL OIL COMPANIES

- What are future oil and gas pricing trends?
- What developments will intensify or weaken demand?
- What are IOCs' incentives and drawbacks in operating in the country?

ALTERNATIVE / RENEWABLE ENERGY ORGANISATIONS

- What are the challenges to renewable energy targets?
- What is the progress of major renewable energy projects?
- Are there opportunities for more entrants?

THE DELIVERABLES

8 MONTHLIES

- Oil Price Scorecard
- Headline Developments
- Spotlight this Month
- Scenarios to Watch
- Projects in the News
- Macro Dashboard for Oil Exporters/Importers
- Outlook for the year

4 QUARTERLIES

- MENA Map as per Political Grouping
- Map of New Licensing Rounds
- Political & Regional Security Issues
- Oil & Gas Prices Outlook
- Global Barriers to Oil & Gas Production
- Deep Dive into OPEC & NOPEC
- MENA Energy Investments
- MENA Energy Fiscal System
- MENA Energy Upstream Bidding map
- MENA Economic Outlook
- Probability Scorecard for Bearish & Bullish Oil Supply/Demand
- Investor Implication Scenarios (Under 3 Oil Price Dynamics)

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IMPROVING
OPERATIONS/PRODUCTIVITY

MAXIMISING REVENUE

INCREASING SUPPLY NETWORK AGILITY

DEBOTTLENECKING SHORTCOMINGS

OPEC WATCH

OPEC Production

- Global oil demand estimate revised from 101.7 Mb/d to 101.9 Mb/d with the bulk of the demand growth stemming from Asia-Pacific.
- Russian crude oil exports increased by 300 kb/d m-o-m ahead of sanctions, with total oil exports in January hitting 8.2mn b/d even with EU shipment cuts.
- Intended OPEC production cuts saw a 49 kb/d m-o-m drop in crude production in January, averaging 28.88 Mb/d. Production cuts likely to be sustained.
- Bulk of production cuts from Saudi Arabia and Iraq, while Nigeria continues boosting production (65 kb/d) along with Kuwait (45 kb/d) and Angola (47 kb/d).

OPEC+ Compliance

- OPEC+ overall compliance bumped up to 172% in January although total OPEC-10 production was found to be 920 kb/d below target production levels with Saudi Arabia having cut exports and despite Libya, Iran, and Venezuela not having to comply with the OPEC cuts.
- Having an estimated 900 kb/d of crude stolen, Nigeria was not able to reach its quota in January, having exported 1.2 M of the expected 1.6 Mb/d. Both Nigeria and Angola struggle to hit expected levels due to insufficient production capacity after long periods of under-investment.
- As it had expected in December, Iraq did not reach its agreed output quota in January, production dropping by 100 kb/d to 4.331 Mb/d as a result of bad weather at the Basrah terminal and reduced crude being sent to refineries. Iraq expects to also miss its February target as it closes its West Qurna 2 field for maintenance for 10 days

OPEC Production, Mb/d

Non-OPEC Production¹, Mb/d

December	January	Change (%)	December	January	Change (%)
28.92	28.87	--0.172	65.91	66.49	--0.872

Latest Organisational Changes

- Expecting an economic recession in 2023, OPEC+ decided to maintain the production cut decision made in October 2022 by an overall 2 Mb/d from November 2022 until the end of 2023 for stabilisation. This is in line with the 0.1 Mb/d growth to 2.3 Mb/d for 2023 and non-OPEC's 1.9 Mb/d increase to offset declines in Russia amid price caps and sanctions. Market is expecting volatility due to predicted demand increase in China as Covid restrictions are eased.
- The US is expected to lead the growth in supply as they near pre-pandemic levels of oil drilling; however the effects of inflation and problems in the supply chain may limit this to a 0.59 Mb/d rise. The US is followed by Brazil, Canada, and Guyana.
- The 35th OPEC and non-OPEC Ministerial Meeting will be held on June 4th, 2023.
- 47th JMCC Meeting held on the 1st of February 2023 saw continued adherence to Declaration of Cooperation (DoC). The 48th JMCC Meeting set on the 3rd of April 2023.

¹ Excluding OPEC NGL and non-conventionals

KEY MENA ENERGY SCORECARD

Abu Dhabi Developments

Oil & Gas	<ul style="list-style-type: none">• ADNOC announces its flagship company ADNOC Gas which will combine the ADNOC Gas Processing and ADNOC LNG operations into one company.• ADNOC sets IPO to sell 4% of ADNOC Gas. Aiming to reel in \$2bn, ADNOC to sell 3 billion shares on the Abu Dhabi Securities Exchange on the 23rd February and trade shares on the 13th of March. Shares are set at AED2.25 to AED 2.43 each.• ADNOC pushes new LNG plant construction in Fujairah to bring total capacity up to 15.6 Mtpa by 2028 and make the UAE the 2nd largest LNG exporter in the GCC.• ADNOC to bump up offshore and onshore crude exports to 2.5 Mb/d each as spare capacity stands at 1.3 Mb/d ahead of expected supply crunch.• China continues crude shopping spree as Unipecc buys 8.5mn barrels of Abu Dhabi Upper Zakum crude.• ADNOC announced during ADSW that work has begun on its CO₂ injection well in carbonate saline aquifers. Initial capacity is set at 18,000 tpa, a small part of bringing ADNOC's total carbon capture capacity to 5 Mtpa from 800 ktpa.•
Alternative Energy	<ul style="list-style-type: none">• Masdar invests in Pertamina Geothermal Energy (PGE) aiming to add 600 MW capacity over the next 5 years to Indonesia's total count. This investment is Masdar's first foray into geothermal energy.• Emirates Nuclear Energy Corporation (ENEC) announce that Unit 3 of the Barakah Nuclear Energy Plant in Al Dhafra, Abu Dhabi has begun operations after a record construction time compared to the previous two units. Unit 3 adds 1400 MW to the plant, bringing total capacity to 4200 MW baseload.• Tawazun signs solar lease with Yellow Door Energy, announcing a 7600 panel, 4382 kWp solar park in the Tawazun Industrial Park to begin construction in 2Q23 and operate by end of the year.• Tadweer and LanzaTech NZ, Inc. announce partnership to explore a large-scale project for municipal waste to SAF conversion.• Masdar opens office in Baku, Azerbaijan as UAE intends to increase cooperation towards renewables. Currently in progress, 230MW Garadagh Solar PV Plant project is slated to begin operating in 2023.• Masdar collaborates with the International Finance Corporation (IFC) to explore and develop renewable energy projects in Africa as well as consider green hydrogen development.• Masdar signs MoU with Verbund to explore green hydrogen production and export it to Central Europe.• Brooge and Siemens Energy sign partnership to produce green hydrogen and ammonia through construction of a 650 MW solar PV plant in Abu Dhabi.

- Mubadala owned Emirates Global Aluminium (EPG) sign MoU with Oracle Energy to explore the production and delivery of 50,000Tpa of green hydrogen through Pakistan’s Green Hydrogen Project.
- Emerge and Coca-Cola Al Ahlia Beverages agree to develop a 1.8 MW solar PV project consisting of ground, roof, and car park panel installations, bringing Emerge’s total capacity to 25 MWp.
- Masdar signed agreements with Angola, Uganda, and Zambia during Abu Dhabi Sustainability Week (ADSW) for the development of renewable energy projects totalling 5 GW across the three countries under the Etihad-7 initiative.
- Emirates Water and Electricity Company (EWEC) set forth a RFP for its Al Ajban Solar PV project in Abu Dhabi with 1500 MW capacity. RFP replies expected until end of Q1.
- A feasibility study for the evaluation of Sustainable Aviation Fuel (SAF) produced using municipal waste and green hydrogen was agreed for between Masdar, Etihad Airways, bp, ADNOC, and Tadweer.
- Kazakhstan’s Ministry of Energy signed an agreement with Masdar and the Kazakhstan Investment Development Fund (KIDF) for the development of a 1GW wind farm, starting off at 500 MW capacity.
- Al Fattan Energy and South Korea’s LTechUVC hydrogen consultancy agree to develop a 200 MW green hydrogen and ammonia project in KEZAD, Abu Dhabi. A MoU was signed between ADNOC and the Korea National Oil Corporation (KNOC) for renewable energy project cooperation.
- The State Oil Company of the Republic of Azerbaijan (SOCAR) in agreement with Masdar will develop 4 GW worth of renewable energy projects including offshore wind and solar PV plants. The agreement was signed during ADSW 2023.
- Masdar and The Netherlands target the aviation, steel, and shipping industries through the development of a green hydrogen supply chain. Four MoUs were signed between Masdar and the following Dutch companies: Port of Amsterdam, SkyNRG, Evos Amsterdam, and Zenith Energy.
- Masdar and Kyrgyzstan’s Ministry of Energy for the development of 1 GW worth of renewable energy projects, starting with a 200 MW solar PV plant.

Kuwait Developments

Oil & Gas	<ul style="list-style-type: none"> • The Egyptian General Petroleum Co (EGPC) signed a deal with Kuwait Energy Company to drill two wells and extract petroleum from the Burj Al Arab region in the Western Desert. • Abraj Energy sign a 5-year deal with Kuwait Gulf Oil Co. and Saudi Chevron Co. to explore and develop oil in Kuwait. • Kuwait expects to send 2.5 MT of diesel to the EU this year as Russian supplies decline due to sanctions. Averaging 50 kb/d, this amounts to five times the regular delivery. • Technip Energies renews five-year agreement with the Kuwait Oil Company (KOC), obtaining another five-year agreement to cover all FEED operations and project management of KOC projects, with the agreement value set at a \$267M minimum.
Alternative Energy	<ul style="list-style-type: none"> • The National Bank of Kuwait (NBK) aims to become carbon neutral by 2060, the first financial institution in the country. NBK has set two milestones on the way: a 25% reduction in gross operational emissions by 2025, and net zero operational emissions by 2035.

	<ul style="list-style-type: none"> • KOC and Worley Consulting signed an agreement to explore renewable energy production in Kuwait through a feasibility study to increase the country's generating capacity and reduce carbon emissions for its net zero goal. • Kuwait plans to reorganise its Ministry of Electricity, Water, and Renewable Energy under a new independent corporation to increase focus on renewables projects and reduce government spending. The Ministry looks to invite global companies to bid.
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Qatar Developments

Oil & Gas	<ul style="list-style-type: none"> • China National Petroleum Corp (CNPC) to soon clinch 30-year with QatarEnergy's North Field, the second mega-deal between the two firms. • Petronet LNG aims to renew long-term LNG contract with Qatar (set to expire this year), currently a 8.5 Mtpa deal set at \$16mmbtu and aiming to add another 0.75 to 1 Mtpa to it. • Amid Basra Oil Company and TotalEnergies' deal, Basra Oil expects QatarEnergy to acquire a 20-25% stake in the \$27bn deal. • QatarEnergy acquired a 30% stake in the TotalEnergies' and Eni offshore gas exploration consortium. The gas blocks, block 4 and 9, in Lebanon's waters expect drilling to begin in 3Q23. • QatarEnergy and Chevron announce Qatar's largest petrochemical's project which will be the largest ethane cracker in the region; its first direct venture in the sector in 12 years. This \$6bn project aims to begin production in 2026 and increase polymer output to over 4 MTpa from 2.6MT.
Alternative Energy	<ul style="list-style-type: none"> • QatarEnergy and TotalEnergies' interested in investing in Lebanon's energy sector through solar power investments to deal with power shortages in Lebanon and in talks with the Electricité du Liban (EDL). • Nikkiso Clean Energy & Industrial Gases Group to open new centre in Business Innovation Park in Ras Bufontas, Qatar. Nikkiso aims to provide support to local firms for LNG, ammonia, and industrial gases along with sustainability efforts such as energy efficiency and waste heat recovery solutions • Qatar looks to join in on TotalEnergies' \$27bn worth of energy projects in Iraq, hoping to acquire a 30% stake in the deal. No confirmation has been made from either TotalEnergies' side or QatarEnergy's. • JA Solar and Samsung C&T to supply 1.6 million DeepBlue 3.0 high efficiency solar PV modules to Qatar's 875 MW project. Split at 417 MW in Mesaieed Industrial City and 458 MW in Ras Laffan Industrial City, this project, which is Qatar's largest PV plant, is set to operate in 2024.

Federal Iraq Developments

Oil & Gas	<ul style="list-style-type: none"> • Iraq signs three 20-year deals with Crescent Petroleum to produce oil and gas from Basra (Khider al-Mai) and Diyala (Gilabat-Qumar and Khashim Al Ahmar fields), aiming for 250mn cfd within 1.5 years. Iraq also signs two deals with Geo-Jade, giving development rights to the Huwaiza and Naft Khana fields, and one deal with United Energy Group Ltd for the Sindbad oilfield. • Saudi Arabia and Iraq in talks to increase cooperation in its energy sector, stating 'total cooperation' on OPEC oil, and may supply Iraq with electricity through the Saudi network. • SOMO confirms its Kirkuk crude oil cargo bid was successful but has not named the buyer. The cargo is to be loaded from Ceyhan, Turkey but may have been delayed as a result of suspended operations due to the earthquakes.
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	<ul style="list-style-type: none"> • TotalEnergies' takes back its decision to withdraw from Iraq to save the \$27bn oil and gas and renewables deal. • Russian Foreign Minister Sergey Lavrov met with the Iraqi Prime Minister Mohammed Shia Al Sudani to discuss opportunities in the energy sector, with Lukoil planning to increase production in its West Qurna 2 field. Meanwhile Iraq is also in discussion with the US on how to pay back Russia with the sanctions in place. • Iraq to improve gas terminals and increase capacities to at least 3.5 Mtpa to raise exports following record export in 2022 (3.311 Mtpa at \$115bn). • Iraq sets plan to build 4000 MW worth of CCGT power plants over the next two years. • Four year old agreement with Siemens Energy revived as 6 GW capacity projects to be developed in the next 5 years to support the struggling power sector through conventional and renewable power plants. 2-3 MoUs were signed.
Alternative Energy	<ul style="list-style-type: none"> • Iraq and France sign a strategic agreement to improve cooperation in the energy and security sectors.

Saudi Arabia Developments

Oil & Gas	<ul style="list-style-type: none"> • Aramco raises OSP for its liquefied petroleum gas from January prices. Propane is now set at \$790/t and butane is \$790/t. Arab Light grade's OSP was also raised to \$2/bbl for Asian markets. • Aramco plans 90 contracts from 2023 to 2025 to rev up economy and push production by 1 Mb/d to 13mn b/d by 2027. Three years of tenders include 66 oil & gas refinery projects, 14 for distribution, and 10 for infrastructure. • Alfanar signs deal with Daewoo Engineering & Construction Co for project exploration in Saudi Arabia for oil, gas, and petrochemicals. • The Industrialization and Energy Service Company (TAQA) finalises its purchase of Al Mansoori Petroleum Services, expanding its portfolio of services and spreading its reach across the MENA, Central Asia, and East Europe. • Saudi Aramco makes full use of the 6th In-Kingdom Total Vade Add (IKTVA) forum to sign \$7.2bn worth of deals and MoUs, totalling up to over 100 agreements. • Saudi Aramco fully acquires Motiva Trading and launches Aramco Trading Americas to become the sole offtaker of the oil refinery at a 630,000 b/d crude capacity. • JGC Arabia awards 2-year deal to Gas Arabian Services (GAS) for Saudi Aramco's Zuluf Onshore oil facilities project. GAS is to supply pre-assembly structuring services and installation for Zuluf's expansion, pushing capacity from 800 kb/d to 1.4 Mb/d, from Arabian medium to heavy crude. • Saudi Arabia extends \$4.44bn oil derivative purchase deal made in 2019 with an added \$1bn this year to Pakistan. The deal aims to provide financial support to the economy. • Arabian Drilling obtains a 5-year, \$173mn contract from Saudi Aramco. Starting from 3Q23 Arabian Drilling will supply an offshore jack up unit for offshore drilling in Saudi Arabia.
Alternative Energy	<ul style="list-style-type: none"> • ACWA Power sign new MoU with SOCAR to develop a battery energy storage system to work with new onshore (1 GW) and offshore (1.5 GW) wind projects. • Saudi Arabia and France sign MoU for collaboration in the renewable energy, energy storage, and smart grid among other sectors.

- First operating license from Ministry of Industry and Mineral Resources issues to NEOM at Oxagon. Construction at NEOM is underway with 20% engineering completed, however total expected budget jumped by 70% to \$8.5bn with \$500mn a result of inflation.
- Saudi Arabia announces that all new power plants to require CCUS technology.
- Mitsubishi Power announces completion of local Blade and Vane service centre at the Dammam facility for gas turbines.
- The Saline Water Conversion Corporation (SWCC) signs deal with Carbonco for cooperation in CCUS research for the country's seawater desalination plants.
- Al Ghazala Energy's, a subsidiary of Jinko Power Technology Co, announces financial close of 300 MW solar project and start of construction.
- NEOM to work with Space Solar to develop the first ever solar power station in space, aiming to have a working 6 MW trial project within 6 years.
- ACWA Power signs two project deals with Uzkiyosanoat: a 3 tpa green hydrogen facility to be added to the existing Chirchiq ammonia plant, and a new 500,000 T green ammonia project.
- Saudi Arabia announced 1T Riyal (\$266bn) investment plan to accelerate clean energy production and achieve 60 GW of renewable energy by 2030 (currently at 700 MW).
- Elsewedy Electric signs \$176.1mn deal with Al Ghazala for the construction of a 300 MW solar power plant (Saad solar) to be up and running by Q3 of 2024.
- ACWA Power signs MoU with Verbund for green hydrogen development to be used in Central Europe from green hydrogen projects in the Middle East.
- Saudi Arabia to expand its nuclear power sector after recent discovery of large uranium deposits in the Kingdom.
- Advanced United Systems (AUS) acquires Aluminium Bahrain's (Alba) 6 MW solar farm consisting of 11,300 PV panels in a 37,000 m² space.
- Netline to produce solar PV panels for NEOM's The Line city starting at Q3 or Q4 of 2023 with total costs of \$3.5mn.
- The Saudi Power Purchasing Company (SPCC) to re-tender the Taiba IPP and Qassim IPP projects into four smaller projects totalling up to 7200 MW capacity (each at 1800 MW). RFPs to be set at January 20 and new bidders are welcome present bids.

Oman Developments

Oil & Gas

- Abraj Energy sign a 5-year deal with Kuwait Gulf Oil Co. and Saudi Chevron Co. to explore and develop oil in Kuwait.
- Abraj IPO bids open from 20 February until 2 March and plans to make \$244mn from the purchases.
- Oman LNG to supply Unipecc with 1mn m³ a year from 2025 onwards. The contract is set for 4 years and is the first between the two firms.
- Abraj and EDO sign MoU to expand for oil and gas development and extraction and extend services to Petroleum Development Oman (PDO).
- Maha Energy and Mafrq Energy sign a Joint Operating Agreement for production of Block 70, an onshore block in the Ghaba Salt Basin.
- Oman LNG secures a 10-year deal with BOTAS Petroleum to supply 1.4bcm from 2025 onwards.

	<ul style="list-style-type: none"> • OQ owned oil Block 60 in Bisat inaugurated on the 26th of January which will bring total production growth to 60 kb/d. • Expected budget deficit leads OQ to sell a 49% stake of its onshore service Abraj Energy. This IPO hopes to reel in \$500mn. • TotalEnergies, OQ, and Shell owned onshore Block 10 in Mabrouk North-East field hit first gas on the 18th of January and is set to reach 500mn cfd by mid-2024. • Oman LNG to supply PTT Global LNG Co and TotalEnergies' with 0.8 Mtpa for 9 years from 2026 onwards and 0.8 Mtpa for 10 years from 2025 onwards respectively. • Shell Oman signs two agreements: a Letter of Intent with the Ministry of Energy and Minerals to explore LSG use in Oman, and a 10-year offtake agreement with Oman LNG to buy 0.8 Mtpa from 2025 onwards.
Alternative Energy	<ul style="list-style-type: none"> • IHI signs MoU with ACME to consider joining their green hydrogen projects with some located in Oman with a share of 1.2 Mtpa of green ammonia. • Oman Power and Water Procurement Company (OPWP) issued two RFPs for commercial, financial, and legal consultancy for Duqm Wind (360 MW), Jaalan Bani Bu Ali Wind (100MW), and Harweel Wind (100 MW) IPPs. Bidding period lasts until 25 February (\$1040 fee) and operation is planned for 2026. • Initial Hydrom bids extended until 15 March and two blocks in Duqm will be granted in April as a compromise. • Among 13 MoUs signed with Saudi Arabia, one is an agreement between Delta Green Energy Company and Saudi External Consultants Group for green hydrogen production (\$10.4mn), and another between Colossal Engineering and Construction Company with Saudi Desert Technologies for solar power project development in Oman. • Oman Energy Development Company's (EDO) Hydrom brings in 180 interested parties for investing in solar PV and wind energy projects for green hydrogen production. The project is providing a total of 50,000 km² of land across Dhofar and Al Wusta, aiming to produce 1 MTpa of hydrogen. The Special Economic Zone is set to lend a sizeable hand towards meeting sustainability goals through investing in 250 km² of land in Duqm, Al Wusta for a 300 MW solar+wind farm for hydrogen and ammonia production. • Solar Wadi looks for EPC contractors for its 100 MW commercial-scale solar PV plant in Sohar Industrial City. A REOI has been announced with bids lasting until the 26th of January. • Shell Oman and OQ join to take a 35% stake in the Green Energy Oman project for development of a green hydrogen chain and produce 1.8MT.

MENA Energy Pricing Reform

- Qatar amends Income Tax Law to impose tax on incomes and investments earned abroad.
- Bahrain suspends industrial land fees for food storage facilities for three months, briefly suspends supermarket promotional campaign fees, and extends low-income family financial support to January.
- Oman to boost budget reserves through listing 49% of Abraj Energy Services on the Muscat Stock Exchange through an IPO.

- The UAE introduces a taxable income under Corporate Tax Law, set at 9% for profits over AED 375,000 and 0% below from June 2023.
- The UAE sets \$15bn budget for low carbon projects for green transition. ADNOC to push investments to \$150bn over next 5 years.

ABOUT US

Qamar Energy provides leading-edge strategy, commercial and economic consulting across the energy spectrum to governments, international oil companies (IOCs), national oil companies (NOCs), investors, and oil traders.



Robin Mills, CEO

Robin is an expert on Middle East energy strategy and economics, described by Foreign Policy as "one of the energy world's great minds". He is the author of two books, *The Myth of the Oil Crisis* and *Capturing Carbon*, columnist on energy and environmental issues for Bloomberg and The National, and comments widely on energy issues in the media, including the Financial Times, Foreign Policy, Atlantic, CNN, BBC, Sky News and others. He is a Senior Fellow with the Iraq Energy Institute, and a non-resident fellow at the Columbia Centre for Global Energy Policy. He holds a first-class degree in Geology from the University of Cambridge and speaks five languages including Farsi and Arabic.

RECENT TALKS & APPEARANCES

Erbil Forum 2023 organised by the Rudaw Research Center
1st – 2nd March 2023

Atlantic Council Global Energy Forum, Abu Dhabi
14th – 15th January 2023



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