



MENA energy investment outlook - adjusted expectations

The MENA region will see a number of critical energy projects pushed through over the next five years, despite uncertainties that cloud the investment outlook. Around \$345bn has already been committed to projects under execution while an additional \$574bn worth of development is planned. Leading the drive will be Saudi Arabia, which along with the rest of the GCC will invest across the energy value chain. Iran will struggle to attract funds as the threat of re-imposition of sanctions deters foreign investors. Likewise in Iraq, the disputes between federal and regional governments coupled with the uncertain outcome of the upcoming elections continue to make investors wary, even though the security situation is improving. In North Africa, Algeria will also face difficulties with its ambitious plans to increase oil and gas production due to budgetary constraints and political uncertainty. In Egypt, the start-up of Al Zohr gas field is expected to attract considerable investment, particularly in power generation, and could prove to be a turning point for the country's energy sector. Renewable-energy projects will be at the forefront of efforts to meet rising power demand in Morocco and Jordan. But there will be many challenges as long term perception of risk about the oil industry, the uncertain economic outlook, deteriorating geopolitical backdrop all have an impact on planned investments.

Global and MENA economics

In January 2018, the International Monetary Fund (IMF) projected overall global GDP growth of 3.9% for both 2018 and 2019. This represents a 0.2 percentage-point increase compared with projections it made in October 2017. The upward revision in the short-term is driven by increased global growth momentum and the impact from changes to US tax policy. Nonetheless, several factors will affect this forecast over the medium term:

Projected real GDP growth 2018-22 (%)



Source: IMF

1) Most notably on the upside is a stronger than expected cyclical rebound which could see a pickup in economic activity and easier financial conditions supporting each other. The upswing has already seen steady momentum since mid-2016, with 120 economies - representing 75% of global GDP - recording year on year growth in 2017. The IMF indicates that data and sentiment already point towards even stronger momentum with world trade growing markedly in recent months, supported by a pickup in investments and increased manufacturing activity in Asia.

2) On the downside, an unexpectedly swift end to easy credit and expected increases in inflation in the more advanced economies and therefore higher interest rates could trigger a market correction resulting in dampened growth and consumer confidence. In particular, the announcement by the new chair of the US Federal Reserve to the senate banking committee in late February signals a switch from nurturing growth to controlling inflation, suggesting higher than anticipated interest rate hikes. Moreover, the latest decision by the US president to impose higher tariffs on the imports of steel and aluminium may trigger trade wars that will negatively impact global growth. As ever, geopolitical tensions and political uncertainties in certain regions continue to pose a downside risk to growth.

The growth forecast for the MENA region is expected to pick up modestly but overall remains similar to those estimated this time last year at around 3.2% for both 2018 and 2019. For Saudi Arabia, the Arab world's largest economy, higher oil prices will improve government finances. A record budget was announced late last year, and the private sector will be encouraged by the introduction of a stimulus package to support the sector. Growth forecasts were revised upwards to 1.6% and 2.2% for 2018 and 2019 earlier this year compared with October 2017 forecasts. Further energy price reforms and the introduction of a 5% VAT in some of the GCC countries will also contribute to inflation and put downward pressure on consumer spending. But these measures will also alleviate fiscal pressures and allow governments to increase spending in key industries and on critical projects. Overall, growth in the medium term will depend on an improvement of the geopolitical situation, oil price stability and governments' ability to rationalise spending and continue their efforts to introduce much-needed structural economic reforms.

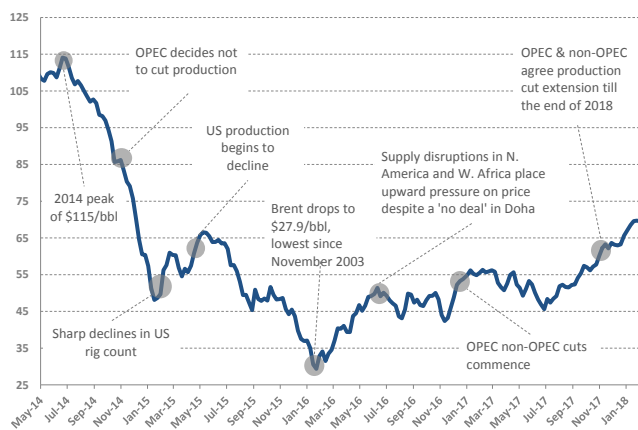
Global oil markets

Global crude prices witnessed substantial recovery in 2017, with Brent averaging \$54 in 2017, up from \$45 in 2016 but ending 2017 at a higher price of \$65. Oil demand grew strongly in 2017, averaging around 1.7m b/d. The IEA suggests that average demand exceeded supply by 0.5m b/d in 2017, from a supply surplus of 1.1m b/d in 2016. Alongside stronger than expected demand growth, the OPEC/non-OPEC deal has accelerated the market rebalancing and the drawdown of inventories.

Non-OPEC supply grew in 2017 by 0.6m b/d at the back of increased production in the US. The IEA estimates that non-OPEC supply will increase by 1.6m b/d to 59.6m b/d in 2018 as higher oil prices provide strong impetus for US production. Nevertheless, we expect OPEC to maintain the agreed production quota at around 32.5m b/d in 2018, as any early exit may result in large fall in oil price.

Looking ahead, we expect the market to rebalance further and for stocks to continue to be drawn on this year in response to higher demand and the OPEC and non-OPEC maintaining their cuts. On the supply side, due to its short investment cycle, US output has been the fastest to respond to recovering oil prices with rig counts reaching 937 in January 2018, up 254 from January 2017. US production averaged around 9.3m b/d in 2017, and is expected to reach 10.5m b/d in 2018. We expect prices to remain in the \$60-\$75 band given the robust US production growth which to put a cap on the price, with the annual average Brent price not exceeding \$70/barrel.

Brent price – historic (\$/b)



Source: Bloomberg, APICORP research

There are many uncertainties surrounding our price expectations. The main source of uncertainty is how fast and how strong the US shale response would be. In addition, while Nigeria and Libya surprised on the upside last year, production could decline, given that the underlying problems have not been resolved. Meanwhile, on the other hand, Venezuela continues to post production declines. In an environment of declining inventories and low spare capacity, the impact of unplanned outages could have a greater upward impact on oil prices.

On the demand side, growth – driven by accelerating economic activity in the US, Europe and India - will be strong this year but expected to be slightly less than 2017 levels at around 1.5m b/d, as expansion in China slows amid a continuing rebalancing of its economy. However, a large source of demand uncertainty stems from recent events including potential trade wars, possible further rises in interest rates and the recent stock market wobble, as well as the impact of higher oil prices on demand.

Global gas markets

Global gas demand has increased by 700bcm over the past decade, with 70% of this increase originating from Asia Pacific and Middle East countries. In some MENA countries such as Saudi Arabia, Iraq and Kuwait, the case for displacing oil in the power sector by developing their own gas reserves and/or importing gas is strong. Asia Pacific and MENA will continue to drive gas demand over the medium term, growing 40% by 2025 compared with 2015 levels and accounting for 60% of global demand growth over the same period.

Gas benchmark prices for Europe, the Middle East and Asia increased in 2017 supported by strong demand as a result of colder winters, thus taking price spreads between US Henry Hub and other benchmarks to a 3-year high. LNG prices in Japan were a little over \$15/mmBtu in 2012 but dropped to \$5.80/mmBtu in 2016, reducing spreads between Henry Hub and the Japan Korea Marker to \$3.25mmBtu, but they have since recovered to average \$4.33mmBtu in 2017 and \$6.50mmBtu so far this year. In Japan, the restart of some nuclear plants displaced gas used in power generation. Alongside China, the Middle East has offered one of the few positive demand-side stories, as countries like Kuwait and Egypt increased their LNG imports.

LNG trade volumes are expected to double by 2021 compared with 2015 levels, and could account for half of all globally traded gas by 2035. LNG cargoes offer the flexibility to be redirected to different parts of the world in a relatively short timeframe in response to regional fluctuations in demand, thus helping to narrow regional differences in gas prices. US and Australian exports of gas will place further downward pressure on prices in 2018 as the Sabine Pass in the US saw a full ramp up to 24bcm, with plans to increase capacity a further 25% by the second half of 2019. Cost overruns and delays have increased the breakeven cost for most projects in Australia, but these will continue to ramp up production as these new plants were all commissioned before the fall in oil prices – having led to the addition of over 63bcm of liquefaction capacity in total between 2009 and 2015. Until recently, Qatar has enjoyed relatively low competition, and following the moratorium lift on the north field, is expected to increase liquefaction capacity by up to 30% by 2024. But its reign as the world's largest LNG exporter will end by 2020, as new liquefaction capacity in Australia comes online, and is likely to be absorbed by Asia.

To regain supply-demand balance in the medium term, the LNG market is counting on strong demand growth in Asia and Latin America – but also from the Middle East, despite competition from renewables and nuclear power. The current squeeze on budgets and significant cuts in energy investments suggests that the LNG market will tighten, but this will not be visible before the first half of the next decade.

MENA energy investment outlook

According to the IEA, global investments in oil and gas recovered slightly in 2017, following sharp declines of 24% and 26% in 2016 and 2015 respectively, marking one of the biggest back to back drops in history. We expect the MENA region to continue investing heavily as major energy-exporting countries expand the size of their energy sector and strengthen their positions in global markets.

The GCC is driving investment in the region and will be well positioned on the back of increased prices. The governments in the region's non-exporters will prioritise investments in their domestic power sectors as electricity demand continues to rise. In this report, we provide estimates for both planned investment and committed investment for the period 2018-2022. While committed investments constitute spending in energy projects currently under execution, planned investment represents a country's spending target to develop its energy sector. Specifically, the planned investments can be broken down into:

- Projects which are at the first phase and are classified as "under study";
- Subsequently, those that have progressed from under study but await the Front End Engineering and Design (FEED) contract; and
- Those at the final level waiting for main contracts to be awarded

APICORP's database is unique in many aspects, but a key feature is that it separates planned projects from ones that are under execution. This gives us a better overview of where in the planning stage the project is, and provides us with a better indication of the likelihood that a given project will be executed. We only capture projects that have been announced, not projects or investments that are needed in the sector. We also include projects in our estimates even if they are not expected to come on line in the medium term, as investments and work will be made during our outlook period. But there are a few limitations. First, it is not possible to capture all projects in a given country, particularly outside the GCC, as some of these countries also suffer from weak institutions, security concerns, poor business environments, and data limitations. It is also difficult to capture investments that are not project-based, particularly in the upstream oil and gas sector.

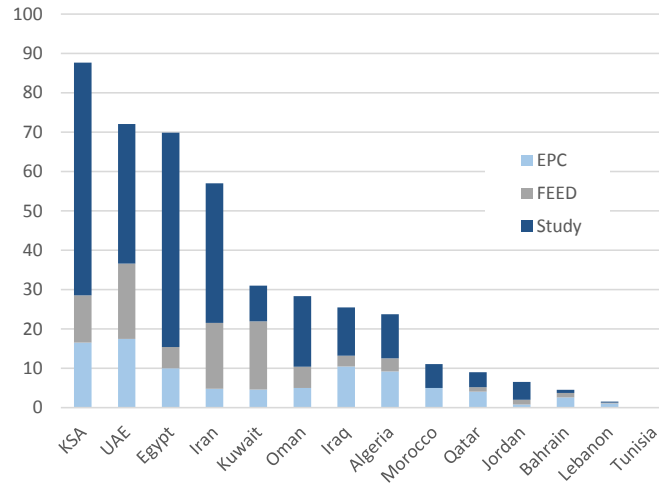
Planned investments

Planned MENA investments in the energy sector are estimated at \$574bn for the next five years. The power sector accounts for the largest share of investments, at \$187bn. The oil and gas sectors will represent \$169bn and \$150bn respectively, with the remaining investments in petrochemicals. Projects under study represent by far the largest portion of planned investments, at \$251bn. Given the current investment climate and uncertain outlook, we do not anticipate that all projects under this phase will move to the execution phase. Contracts under design and EPC phases are more likely to materialise in the medium term. Projects under contract bid amount to \$92bn, while those under design reach \$86bn.

Saudi Arabia and the **UAE** represent 38% of planned investments, with \$149bn and \$72bn respectively, over the outlook period, as both countries look to boost their upstream oil and gas sectors. Saudi Arabia has concrete plans to increase gas production and to promote the role of gas in its energy mix – which is currently diverted entirely for domestic use in power generation and industry, while ambitious plans to boost renewable energy generation are also moving forward. Additionally, the country has a large number of projects in the pipeline to add significant power generating capacity as peak load demand is estimated to reach 80GW by 2022. The Kingdom is also planning to continue investing in petrochemicals in its

drive to diversify and create more value. Two major projects currently planned include the Jubail Oil-to-Chemical Complex and the Yanbu Integrated Refinery & Petrochemicals Complex.

Planned MENA energy investment 2018-22 (\$bn)



Source: APICORP research

Planned investment in the **UAE** is \$72bn, of which \$17bn is at the contract-bidding phase. The ADCO consortium - which accounts for more than half of the UAE's oil output - will drive up upstream investment in our outlook. Additionally, the country plans significant downstream investments in expanding their refining and petrochemical sectors – with the Ruwais Refinery upgrade and the Borouge Petrochemicals Complex representing some of the largest projects.

For **Egypt**, the main concern is ramping up gas production and rising power demand. Planned investments in the country are \$72bn, with the power sector making up over 50% of the total. Gas development projects underway will potentially make Egypt a net gas exporter, but not in our medium-term outlook. ENI's Al-Zohr field in the Mediterranean will be Egypt's main gas focus in the medium term. In the power sector, the renewable energy plan to add sizeable wind and solar capacity is expected to drive investments in the sector.

In **Kuwait**, planned projects over the period stand at \$59bn, with over 50% in the oil sector. More specifically, the country intends to increase oil output to 4m b/d within our outlook and achieve non-associated gas capacity of 2.5b cf/d by 2030. In petrochemicals, the Al-Zour Petrochemicals Complex is likely to go ahead with an estimated cost \$6bn, with contracts expected to be awarded in 2019.

In **Algeria**, a sharp fall in export revenues is threatening fiscal balances and investment programmes. Planned projects stand at around \$58bn with the Hassi Messaoud Peripheral Field Development accounting for a significant portion of investments in upstream oil. The country will seek to invest in upstream oil and gas to meet its target of increasing production by 20%. A series of downstream projects totalling \$8bn are planned including the Hassi Messaoud and Tiaret refineries.

For **Iran**, total planned investments are \$57bn, of which the majority will go towards oil and gas projects. This highlights the country's aspiration to boost its oil and gas sectors with major projects including the North Pars gas development and the \$4.5bn Kish gas development.

Largest energy projects by budget over the outlook period

Project	Country	Sector	Budget (\$m)	Completion year
Barakah Nuclear Power Plant	UAE	Power - Nuclear Plant	40,000	2025
Crude Oil Export Pipeline	Iraq	Oil - Midstream	27,500	2022
Yanbu Oil to Chemicals Complex	Saudi Arabia	Chemicals	25,000	2025
Renewable Energy Program	Saudi Arabia	Power - Solar Farm	20,000	2023
South Gas Utilisation Project	Iraq	Gas - Upstream	17,200	2019
Zour Refinery Project	Kuwait	Oil - Downstream	17,000	2021
Clean Fuels Project 2020	Kuwait	Oil - Downstream	16,285	2022
Upper Zakum Full Field Development	UAE	Oil - Upstream	16,180	2020
Jizan Refinery Project	Saudi Arabia	Oil - Downstream	16,165	2018
Khazzan and Makarem	Oman	Gas - Upstream	16,000	2020
Duqm Refinery - Duqm Refinery & Petrochemical Complex	Oman	Oil - Downstream	16,000	2023
North Pars Gas Field Development	Iran	Gas - Upstream	16,000	2023
Hail and Ghasha Sour Gas Development	UAE	Gas - Downstream	15,000	2022

Source: MEED Projects

Since the removal of sanctions last year, the government has not been successful in attracting much needed foreign investments due to several political and economic challenges. Iran will also need to maintain its commitments to the letter under the nuclear agreement to avoid the “snap-back” of sanctions. The Trump administration has made no secret of its desire to pull out of the Iran deal.

Iraq is playing catch up at very challenging times. Its planned projects currently stand at \$37bn, a figure weighed down heavily by political, economic and security risks. Meanwhile, low oil prices have been damaging the government’s budget, despite rapid production growth over the past few years. To maintain these high levels of production, the country and IOCs will need to continue investing in upstream development. The government is prioritising the power sector especially following loss of generation and transmission during the war against so called ISIS, but equally the downstream sector, with substantial sums committed on a number of refinery projects.

Planned projects for the remaining GCC countries will reach \$57bn. **Oman’s** planned projects are focused on the downstream and petrochemicals sectors. One of the largest projects is the Duqm petrochemicals complex, which is expected to see a large portion of its \$9bn budget invested over the next five years. The majority of **Qatar’s** investments have come into fruition, and with the lifting of the moratorium recently, we expect higher investments in gas development as the country plans to double the size of its planned expansion, increasing LNG capacity to 100m t/y by the end of the outlook or shortly after. In **Bahrain**, most planned investments are also in downstream as the kingdom expects to invest \$5bn between 2018 and 2022.

Total planned projects in **Morocco** and **Jordan** amount to \$19bn and are heavily skewed towards power generation. Both countries have been leading on their renewable initiatives, including subsequent phases of the giant Masen solar park in Morocco, estimated to cost \$3bn.

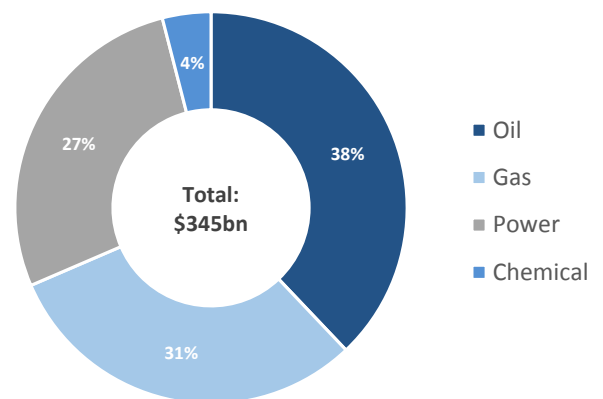
Committed investments

Investments in the energy projects currently under execution are estimated at \$345bn for the five-year period. The oil sector accounts for the largest share of investments at \$131bn, with the majority in upstream projects.

Total committed gas and power investments are approximately \$106bn and \$95bn respectively, followed by chemicals at \$14bn. The GCC represents \$171bn in committed investments, approximately 50% of the MENA total.

Iran leads the region with an estimated \$67bn, mostly focused on the oil and gas sector. The country has prioritised the development of phase 12 of the South Pars gas field, where around \$10bn will be invested over the outlook period. In upstream oil, the focus will be on the West Karun oil fields, particularly South Yaran and South Azadegan, which will contribute further to Iran’s short-term output-capacity growth. In the downstream, the Siraf refinery project, with a budget of \$2.4bn, will increase capacity by up to 480k b/d.

Committed MENA energy investment by sector (%)

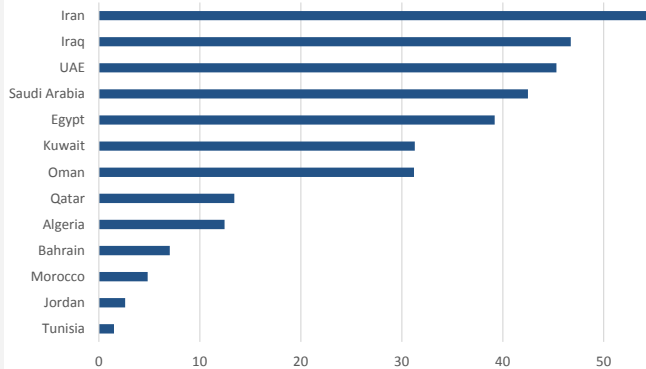


Source: APICORP research

Second is **Iraq**, at \$47bn. Oil investments account for \$27bn with the ENI-led Zubair and the PetroChina-led Halfaya, two of the largest upstream development projects in the country. In downstream, the country has several projects under execution to boost refining capacity and reduce the import bill, with the Maysan and Faw refinery amongst the major projects.

UAE comes third, at around \$45bn, with upstream investments in Upper Zakum and power projects like the Barakah nuclear power plant accounting for a large proportion of investments over the outlook period.

Committed MENA energy investment 2018-22 (\$bn)



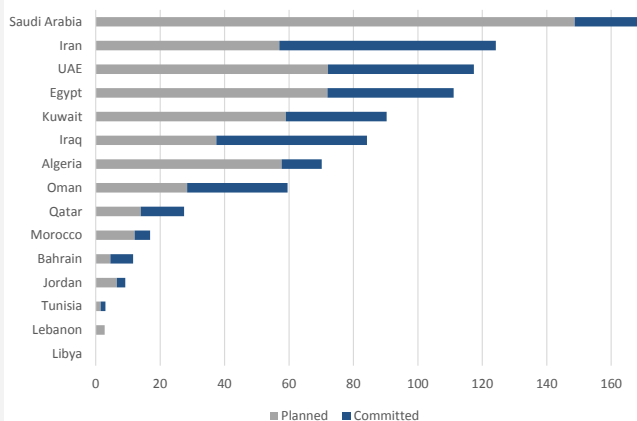
Source: APICROP research

Saudi Arabia has committed an estimated \$42bn for the outlook period, of which \$14bn will be in the power sector. The 4GW Jizan integrated gasification combined-cycle power plant will alone cost \$8.5bn. The remaining investments are spread evenly across oil and gas, with the \$6.5bn Fadhili gas plant, one of the largest investments coming on line in 2019.

In **Egypt**, committed investments stand at around \$39bn, with power-generation projects accounting for \$18bn. The renewable energy program is expected to account for a large sum of committed investments within our outlook as the country aims to achieve its 20% clean energy target by 2022. In the gas sector, the BP-led West Nile Delta represents the majority of investment under execution.

Kuwait and **Oman** have committed \$31bn each. In **Kuwait**, downstream projects represent half of investments under execution. Major projects include the Al-Zour refinery and the Clean Fuels Project aimed at upgrading and expanding the Mina Abdulla and Mina Al-Ahmadi refineries. As for **Oman**, the government is prioritising investments in upstream gas. The BP-led Khazzan and Makarem project is the largest gas development in the country, with estimated total spending of \$13bn within our outlook period. In downstream, the \$7bn Duqm refinery and petrochemical complex is expected to be completed in 2021.

Total planned and committed MENA energy investment 2018-22 (\$bn)



Source: APICROP research

In **Qatar**, the country has ambitious plans to invest in further oil and gas development, particularly the redevelopment of the Bul Hanine which is expected to more than double its existing

capacity. Current committed investments in the energy sector amount to around \$13bn. Amongst the projects coming on line within our outlook include the Barzan gas field initially slated for 2015, but now more likely at the end of 2019.

Algeria has committed \$12bn over the medium term. The majority of investments are in upstream and the power sector. In Morocco, investments are focused in power generation with renewable-energy projects, such as the Moroccan Solar Plan, at the forefront of its plans.

Libya, Syria and Yemen - thwarted by ongoing civil wars - will see very little investment over the period.

Change in investment outlook

	Committed	Planned	Total
2016-20	288.8	610.5	900
2017-21	337.3	622.3	960
2018-22	345.2	573.9	919
% Change	2%	-8%	-4%

Source: APICORP research

Overall, according to our estimates, \$574bn could be invested over the next five years, over and above what has already been committed, thereby bringing total committed and planned investments up to \$919bn – a 4% decrease from last year's forecast as a result of downward revisions in certain countries including Iran, Iraq, and Algeria. By our estimates, around 80% of the investments are government led whilst the remainder are a combination of either wholly private sector developments or public-private partnerships. Planned investments decreased by 8% whereas committed investments increased by 2% from our previous outlook. This represents the transition of many projects and investments from the planned to committed phase as contracts are awarded following a more positive outlook.

Challenges and constraints

While MENA is pushing ahead with its investment plans, we believe several challenges and constraints will prove pivotal in the medium term.

First, global investments in the oil and gas sector are closely interlinked with oil prices. Prices have recovered and remained stable in 2017 and are expected to remain range bound around the current level for now. Countries in the MENA region, including Saudi Arabia, Kuwait, Iran and Iraq, announced that they would go ahead with investment plans. Other countries with low fiscal buffers and competing pressures on its revenues - particularly Iraq, Iran and Algeria - will continue to face political and economic challenges in executing their ambitious capacity expansion programmes.

Second, raising capital continues to be one of the major challenges for regional governments. Although recent efforts to attract foreign investment have seen some success, political and economic concerns mean investors will be cautious. However, this environment also creates opportunities, as regional players would be forced to seek external finance. Low oil revenues have forced governments to raise capital on the domestic and foreign debt markets. Privileged by its high reserves and low debt to GDP ratios, the GCC issued record debt of over \$50bn in 2017, surpassing the previous year's record of \$37bn.

Saudi Arabia represents the bulk of this, with over \$21bn of debt raised, followed by Abu Dhabi and Kuwait with \$10bn and \$8bn respectively. Oman (\$8bn) and Bahrain (\$3bn) also tapped the international market. In parallel, selling stakes of energy companies to raise capital is picking up pace. Privatisation efforts are underway in Saudi Arabia with Saudi Aramco's much-anticipated IPO slated for end of 2018, though the Saudi energy minister has indicated that this deadline is artificial.

Other Gulf NOCs are considering selling off some of their assets, with Adnoc exploring selling minority stakes in its services segments, after having launched an IPO for its retail business. As for Iran, attracting funds has proven to be more onerous than they would have hoped as the threat of re-imposition of sanctions deters foreign investors.

Finally, despite the defeat of the so called Islamic state in Iraq, the region's geopolitical backdrop remains fragile. Persistent conflicts in Syria, Libya, and Yemen are reshaping the region's geopolitical landscape, and will deter investment in these countries in the near term. Regional instability is unlikely to recede in the immediate future, and investors will be wary of spill-over effects in neighbouring countries. Disputes between the Kurdish Regional Government and Baghdad as well as the outcome of the upcoming elections will cloud the investment outlook. Tensions in the GCC peaked in the summer of 2017 with strong disputes between Qatar and its immediate neighbours Saudi Arabia, UAE and Bahrain. The regional isolation of Qatar is worrying investors who have historically viewed the GCC as the safe haven of the MENA region.

Following a particularly unsettling 2016, 2017 saw improvements and rebalance in the region. The period of weakest economic growth and oil prices seems to have passed, but the recovery phase will be long and challenging. GCC governments have announced expansionary budgets following a few years of tightening expenditures because of lower oil revenues.

Governments will prioritise critical investments in their energy sectors. The GCC will use investments to keep its status quo as the key supplier of energy to the rest of the world. Saudi Arabia has the largest committed and planned investments in the medium term- while Kuwait and the UAE have ambitious programmes throughout the value chain. Iran will also play catch-up as post-sanctions investments struggle to materialise. Iraq will continue to prioritise investment in its energy sector and attract foreign investment, but political uncertainty and a weak business environment will pose some challenges. Egypt will prioritise upstream gas and power sector investments to meet rising demand. Elsewhere in North Africa, Algeria will be interesting to observe, as large investments are needed there to boost oil and gas output.

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APPENDIX

The database separates planned projects from those under execution (committed investments). Projects will be included in our estimates even if they will not come on line in the medium term, as investments and work will be made during our outlook period.

Planned investments

Planned investment represents a country's investment target to develop its energy sector. Pre-execution level projects include:

- Those at the first phase and classified as under study;
- Those that have progressed from under study but await the Front End Engineering and Design (FEED) contract; and
- Those at the final level waiting for main contracts to be awarded.

Additionally, we capture non-project-associated estimates based on announcements from various sources that we believe will materialise within the outlook. These include, but are not limited to, IOC/NOC investment plans, ministerial announcements on specific sectoral spending, and government plans within five-year budgets.

Planned projects are by no means an estimate of what is required in each sector, especially in the power sector. In some instances, the perceived investment outlook for each country may fall below or exceed these levels.

Committed investments

This includes investments in energy projects currently under execution; that is, contracts for these projects have been signed. Total committed investment is the sum of the estimated cost over the five-year period based on the contract value.

Exclusions

There are some data limitations and these depend on region. It is often not possible to capture all projects in a given country, particularly outside the GCC, as some of these countries also suffer from weak institutions, security concerns, and poor business environments.

Our estimates do not capture investments that are not project-based, particularly in the upstream oil and gas sector, unless specifically announced (as per above).

Sources

A wide range of sources were used and included:

- APICORP
- Bloomberg
- EIA
- IEA
- IMF
- IOC websites
- MEED Articles
- MEED Projects
- MEES
- NOC websites
- OPEC
- Reuters Eikon
- Utility websites