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Arabia Monitor Energy Insight now available in collaboration with Arabia Monitor

8 monthly reports, 4 quarterly reports

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Description

The Arabia Monitor Energy (AME) Insight highlights our **outlook on MENA energy investments** and the **key issues surrounding the energy markets** (oil, gas, power and chemical) putting forward the **key implications for those involved**. We estimate **over \$700 bn of energy investments over a 10-year period**, but will all the projects materialize? Which projects are likely to be put on hold or even cancelled? We provide our expert opinion on the probability of energy projects reaching the completion stage.

Our reports help companies, advisors and investors **understand trends, risks and issues affecting the energy industry**. We offer you **scenarios on probable events that may affect your company's financials**. For example, we cover important issues such as the impact of devaluation in the GCC, the impact of return to stability in some unstable oil producers and the impact of economic diversification in the GCC. We offer you the likely timing of the event, the probability of different outcomes, how to mitigate any risks and take advantage of any opportunities.

We have dedicated analysts from Qamar Energy and Arabia Monitor **with over 80+ years of experience** who produce forward-looking market oriented analysis at both country and asset level **across MENA region**. Our forward-looking perspective places regional developments in a broader context and delivers strategic investment and decision making insights.



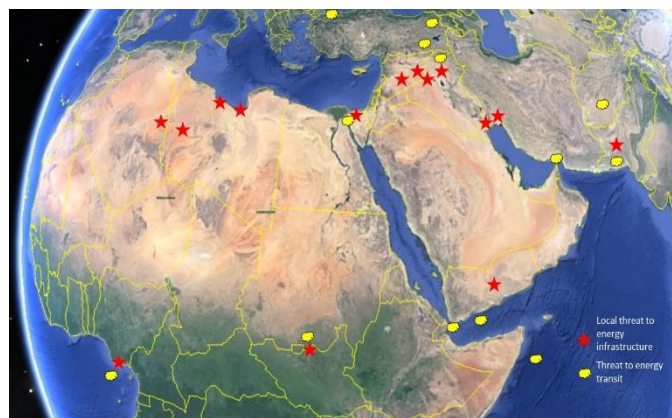
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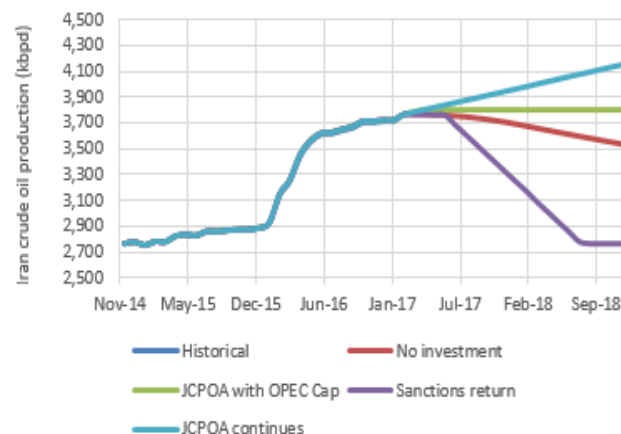
Arabia Monitor Energy Insight: Sample

OIL SUPPLY SCORECARD

BEARISH		SUPPLY		BULLISH	
Rapid return of Iran production	+700 kbpd in April on sanctioned levels (~200 kbpd from storage?)	Iran reaches maximum output	Possibly +200 kbpd above April levels		
Increase in Saudi production	~10.5 Mbpd in May with room to increase further (above 10.125 Mbpd in April)	Iraq spending cuts – disagreements with IOCs	Iraqi production flat or slight decline from January's 4.775 Mbpd		
More aggressive Saudi output policy to guard market share; challenge Iran	Permits further production increases (to 11+ Mbpd?), with completion of 250 kbpd Shaybah expansion	Nigeria disruptions	~580 kbpd lost so far with further disruptions possible		
No OPEC agreement on freeze in June	Little practical importance except permitting Saudi production increase	Canada wildfires	1.07 Mbpd lost, but now beginning to recover		
Libya security improvement & political reconciliation	Up to +800 kbpd but likely to remain volatile	Libya port closures & sabotage	Further 0.14 Mbpd lost		
Restart of Saudi-Kuwait Neutral Zone	+100-150 kbpd incremental in Kuwait (+500 kbpd gross; assume Saudi cuts from other fields)	Further Kuwait strikes	Cut 1.5 Mbpd briefly		
Rapid return of US shale drilling if prices exceed \$50		Venezuela disruption – payment problems, defaults, possible unrest & strikes	Production fell by 20 kbpd in April; March production: 2318 kbpd April production: 2298 kbpd		
Completion of DUC shale wells in US		Kurdistan-Turkey pipeline	Further interruptions possible (cutting ~600 kbpd for a number of days)		
Inventories still historically high and continuing to climb	Global oil inventory builds expected to average 1.4 Mbpd in 2016 and expected to grow by 0.4 Mbpd in 2017	US shale oil bankruptcies	More than 50 North American oil and gas producers have entered bankruptcy since early 2015		



IRAN: COMPANY HOAs, MOUs, INTERESTS



Scenarios to watch

Oman Rial Devaluation Shifts Stress to Saudi

Timing 2017

Event President Trump's stimulus plans are leading to higher interest rates and a stronger dollar. This will require higher GCC interest rates to protect the peg, but negatively affecting domestic economies. Higher oil prices, reflecting the OPEC cut, in this scenario are insufficient to ease twin fiscal & current account deficits.

Impact GCC countries are forced to raise interest rates and introduce capital controls to defend their currencies, leading to difficulties in making payments. Companies with foreign currency debt are particularly exposed and some are forced into restructuring. Oman is meeting with finance ministers in other GCC states to secure a multi-billion-dollar deposit in its central bank to boost its foreign exchange reserves to cushion any pressure on the Rial and to keep the exchange rate intact. Countries that don't devalue (e.g. UAE) become less competitive against those that do (e.g. Oman, Saudi, Bahrain).

Mitigation Sound macroeconomic management and communication with markets is required at a national level. At a corporate level, companies should consider their currency and debt exposure, particularly any mismatch in maturities, and hedge if required. However, a devaluation in Oman offers an opportunity for stronger UAE companies to acquire assets at attractive prices and larger UAE fiscal reserves create perception of safer market, possibly attracting business. Cheaper currencies make domestic export-oriented businesses more competitive

Scenario probability - 15%

Alternative futures 1) 35%: Economies cope with the downturn, or oil prices recover, and there is no devaluation. 2) 10%: Devaluation is a great success for Oman, leading to lower costs and economic diversification, and the other GCC countries follow. 3) 3%: Oman reverses its position on GCC monetary union and a single Gulf currency is introduced. 4) 10%: Omani succession puts more pressure on the government, leading to a combined political, economic and currency crisis. 5) 10%: Oman, then Bahrain, then the other GCC states devalue, leading to a wider economic crisis. 6) 2%: Oman turns to Iran for economic aid and moves away from the GCC political line. 7) 15%: The other GCC states bail out Oman but only in return for major political concessions, including reducing its links to Iran, and joining the coalition in Yemen.



Photo courtesy of Huffington Post

WHAT TO LOOK OUT FOR IN 2017



Qamar Energy

Issue 10: February 2017

Glorious ongoing uncertainty of energy markets

By Robin Mills

A version of this article appeared in The National newspaper on January 14, 2017

President Truman, frustrated with economists who said "on the one hand this ... on the other hand that", said, "Give me a one-handed economist!" Energy economists are used to being asked what oil prices will do in the year ahead. Last month, 11 economists, me included, put our professional reputations on the line by predicting the oil price on December 31 this year.

The bets were collated on Twitter by Leslie Hayward (@leslietron) of Securing America's Future Energy, a non-profit campaign group. They range from a low of US\$32.70 per barrel to a high of \$73.20 (compared to the closing price of Brent crude at \$57.10 per barrel on Friday). My own forecast, derived after rigorous analysis of the market – and the addition of a crucial extra cent – was \$55.01.

But most of the predictions were in quite a narrow range, from \$55 to \$70. This shows a general expectation that prices will rise during this year, but not too much. Given the market volatility over the past two years, to come even within \$15 of the actual price would be some achievement.

This band has been adopted by many analysts as the level at which solid, but not explosive, expansion of US shale oil production will cap prices. The deal between OPEC and non-OPEC countries to reduce output will help to rebalance the market, even with imperfect compliance. The enormous overhang of oil stocks will gradually be drawn down, perhaps from the third quarter of this year, but will prevent any price surge.

But groupthink is dangerous. The point at which most economists agree is usually the time for a surprise. What would drive a shift from this cosy consensus?

Without second-guessing my fellow competitors' reasons for their forecasts, a very low price is not likely to be the outcome of excess supply. US shale oil drilling is rebounding strongly with the rise of prices to the \$50 level, with the number of active rigs reaching its highest point in a year on Friday, more than double where it was in May.

But if oil prices again drop to \$40 or below, shale oil development will drop off again. Before the OPEC cuts, most countries were close to their maximum output anyway, with increases in Nigerian and Libyan output subject to security vagaries.

The deal could of course collapse, but if it does, that seems most likely to be at the end of the initial six-month period, not the year end.

So what would the most likely cause of low oil prices be? The obvious culprit here is the world economy – perhaps the bursting of a bubble in China, or a Donald Trump-inspired trade war.

The possible causes of high oil prices are more varied. Two possible scenarios are as follows. In the first, OPEC members stick to their planned production cuts – indeed, Saudi Arabia and Kuwait have already pledged to go beyond their commitments.

Meanwhile, the North American shale business finds it harder to ramp up output than expected. Costs for inputs such as drilling rigs and labour rise along with demand, and skills shortages bite. Financiers, stung by losses over the past two years, are reluctant to extend more capital. The cumulative effects of three years of capital spending cuts see production dropping in mature and high-cost areas around the world.

The second scenario is based on geopolitical risk – an upset in a major oil producer. Perhaps Venezuela, sliding ever closer to economic and political breakdown, is the best candidate.

Such outcomes lie outside the domain of humble energy economists, and into the realm of macroeconomists and political scientists. By the end of December, the game may be decided by supply, demand, OPEC, shale, geopolitics or another entirely unexpected factor. But that is part of the glorious uncertainty of the market for oil, the king of commodities.

Trump's "America first" energy plan

- **Support** ramping up fossil fuel production and support the coal industry as vehicle for job growth.
- **Support** Keystone XL pipeline - Trump voiced that he will ask TransCanada to renew its permit application to build the Keystone Pipeline, conditional on using US steel.
- **Lift restrictions** on oil and gas company drilling - President Obama freed up three massive reserves in Alaska in March 2016, though environmental activists say the land should never be drilled. Trump's energy plan will lift many regulations on oil and gas companies and allow them to drill in the Alaska, Arctic, the eastern seaboard and the eastern Gulf of Mexico. He pledged to revoke policies that impose unwarranted restrictions on new drilling technologies (hydraulic fracturing) and flaring.
- **Lift moratoriums** on energy production in federal areas - Trump's campaign has expressed that "energy independence" will be a top priority and he would "lift moratoriums" in federal areas, including moratoria on coal land leasing.

Action	How likely it will happen?
Support ramping up fossil fuel production	● Difficult because coal supply and demand is decreasing and power plants have already adjusted to minimize mercury pollution. Main threats to coal are cheap shale gas, and cheap renewables.
Support Keystone XL pipeline	● Will continue to face protests
Lift restrictions on oil and gas company drilling	● Lifting restrictions around oil drilling in Alaska or the Arctic Ocean or even parts of the Atlantic Coast will face significant Congress Democrat opposition, and likely state & legal challenges.
Lift moratoriums on energy production in federal areas	● Trump will attempt to end the coal leasing moratorium. All 4 actions will receive environmental opposition, but ending this would be most likely, especially the end to leasing public land below market value to coal companies.

Post-Soviet oil industries trying still to break free

By Robin Mills

A version of this article appeared in The National newspaper on December 28, 2016

Twenty-five years ago today, the Supreme Soviet of the Soviet Union voted itself out of existence. The fall of the USSR was triggered by an oil price crash; its dissolution opened up vast territories for international oil companies.

The half-dead Soviet system could survive only as long as it bathed in the fresh blood of its petroleum revenue. Its giant energy industry, the fruit of a titanic effort in hostile climates, was grossly inefficient and environmentally negligent. As the former Russian prime minister Yegor Gaidar authoritatively described in his *Collapse of an Empire*, after the fall in oil prices in 1986 engineered by Saudi Arabia, Moscow could neither feed its people nor service its debts.

After 1991, the former Soviet states followed their own paths in developing hydrocarbon resources. Catchphrases from history were resuscitated as oilmen descended on the "Wild East" of bandit capitalists, BP signed the "Contract of the Century" to bring oil from Azerbaijan to the Mediterranean and westerners, Chinese and Russians played out a "Great Game" in Central Asia to open a "New Silk Road" bringing not silk but gas.

Azerbaijan and Kazakhstan opened up early to international oil companies. With hydrocarbons the pillar of the economy, those countries have come in some ways to resemble their Arabian Gulf petro-counterparts. In Kazakhstan's Caspian offshore, a star-studded international consortium in 2000 found one of the largest fields of the past 30 years. But Kashagan's high-

pressure oil laced with deadly hydrogen sulphide, deep under a layer of salt, only started production late this year after more than US\$50 billion of expenditure.

The post-Soviet market transition is not even near complete in Turkmenistan and Uzbekistan. Though Dubai's Dragon Oil has done well developing offshore oil, Turkmenistan's huge gas resources, the world's fourth-largest, are exported to China but mostly off-limits to international investment.

And what of the biggest bear in the post-Soviet republics? Russian oil production collapsed during the 1990s but the concurrent economic free fall and the elimination of grossly wasteful Soviet industry meant that exports actually increased. Following the 1998 economic crisis and devaluation, the suddenly competitive oil sector grew strongly under the direction of oligarchs such as Mikhail Khodorkovsky and Roman Abramovich. Output increased by 40 per cent in just four years to 2003.

This "West Siberian miracle" would anyway have petered out as it was based on the one-off application of modern methods to Soviet-era fields. The current president Vladimir Putin's reassertion of central state power and taxation, and the swallowing of Mr Khodorkovsky's Yukos company by Rosneft under Mr Putin's right-hand man, Igor Sechin, brought this explosive growth to a sudden end. Under Rosneft and Gazprom, about three quarters of the petroleum industry is now back in state hands.

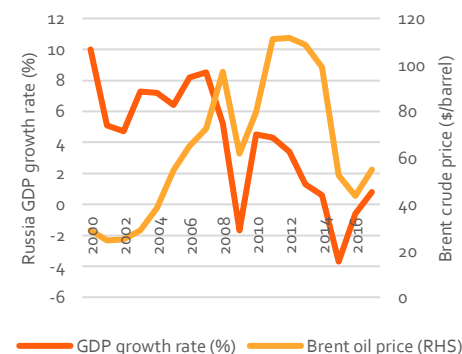
Source: World Bank; OPEC; EIA; 2017 price forecast is author's projection

Western oil companies were only bit players in this drama. BP struggled through tribulations but eventually profited substantially from its joint venture with TNK, later taken over in its entirety by Rosneft. Shell and ExxonMobil have had rocky though lucrative rides in the far eastern island of Sakhalin.

Russia's new frontiers include the offshore Arctic such as the Kara Sea and probably more promisingly the colossal Bazhenov Shale of West Siberia. Western sanctions that have blocked the technologies needed to develop shale and stymied ExxonMobil's Kara Sea joint venture with Rosneft may crumble next year.

The Russian oil industry is far more efficient, sophisticated and market-oriented than its Soviet counterpart. Output continues to inch up, defying all forecasts by international agencies and its earnings still underpin Putinism.

Comparisons to the collapse described by Mr Gaidar are facile. Yet despite modernisation and market-oriented transformation, the former USSR's oil and gas sectors still bear the heavy imprint of Soviet times. Dismantling Communism was the easy part; building diversified economies remains vital but elusive.



Energy advancements have a habit of changing society

By Robin Mills

A version of this article appeared in The National newspaper on January 2, 2017

The steam engine took 44 years from James Watt's first practical machine to the first railway. The atom was split in 1917 but the first commercial nuclear power station arrived in 1954.

The first successful fracked shale gas well was drilled in 1998, but the technique did not take off for a decade. Energy innovation takes a long time.

In 2016, though, the past decade's new energy technologies began to make inroads. Solar is becoming the lowest cost electricity in most sunny regions. From 12 US cents or more per kilowatt hour in 2012, Dubai procured its latest solar power plant for 2.99 cents in May.

In Europe, giant turbines, floating systems and new mapping of wind resources are making offshore wind power more attractive.

Better batteries offer both truly mainstream electric vehicles, and the storage of electricity from intermittent renewable sources.

The cost of shale oil and gas production has declined dramatically under the pressure of low commodity prices. Outside North America, the shale revolution has barely started, but Argentina, Russia, the UK and elsewhere have the right rocks. Floating liquefied natural gas terminals for export and import make international gas trade far more flexible.

Emerging areas of innovation may at first sight seem unrelated to energy but open unexpected vistas. In a decade, we can imagine smart homes that control their electricity

production, storage and use remotely. Self-driving electric cars charge themselves while waiting for a passenger.

Artificial life forms generate fuels from carbon dioxide in the air, recover oil and gas like tree roots, or clean up pollution. World trade shifts to highly efficient drone ships, while 3D printing cuts waste but may encourage a new, unfettered and inventive materialism.

On the further horizon are radical new breakthroughs, in limitless clean nuclear fusion; Hyperloops that carry passengers from Dubai to Abu Dhabi in 12 minutes; or hypersonic (and fuel-hungry) flights from London to Sydney in the matter of two hours.

Space tourism, automation and machine intelligence, human life extension and virtual reality may create radical changes in society, and so in energy use.

Perhaps physical travel becomes near-obsolete, or perhaps the energy demands of a new orbital society grow enormously.

Such energy technologies will fight a Darwinian struggle. Economic viability will be essential but not sufficient – some cost-competitive systems will fail because they are perceived, perhaps inaccurately, as unsafe or environmentally unacceptable; they do not appeal to certain political constituencies; they fail to adapt to users' needs or the whims of fashion; or they fall behind in the race to achieve a critical mass of deployment.

Older technologies still have the advantages of proved reliability, familiarity and a large installed base. Running a fully depreciated coal or nuclear power station remains very cheap. The pressure of competition will also drive the incumbents to innovate. Incentives – such as free parking, dedicated lanes and exemptions from vehicle tax and road tolls for electric cars – will become unaffordable or impractical as new energy systems enter the mainstream.

And batteries to store entire nations' shifting electricity loads between seasons will have to be built on enormous scales and use vast quantities of sometimes esoteric materials.

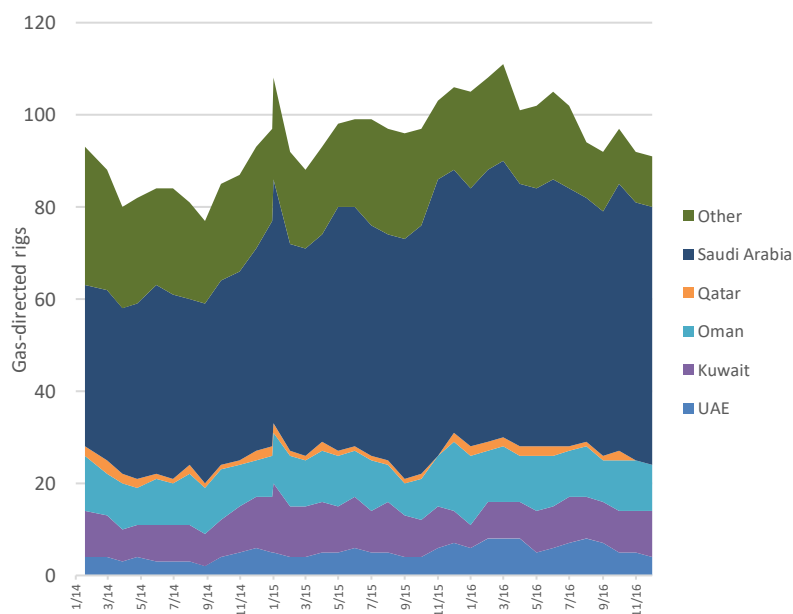
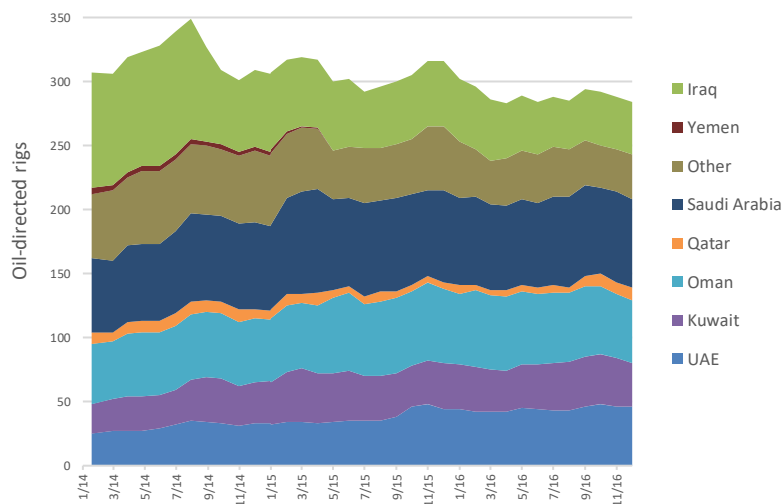
The technological element is easy; the human, difficult. The great transformations require changes in people's behaviour, changes in the organisation of companies and even society.

Mighty corporations founder while others are raised up. Whole industrial regions dwindle to insignificance – the coal miners of West Virginia or Yorkshire cast on to the scrap heap as Silicon Valley, Cambridge and Shenzhen rise.

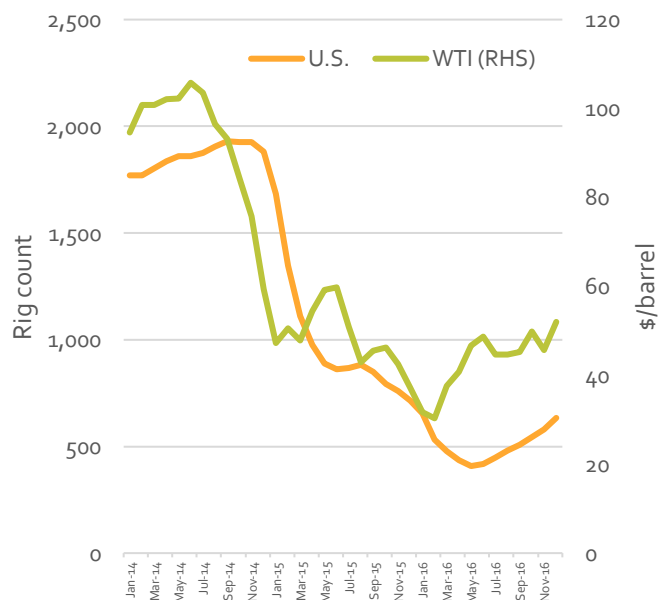
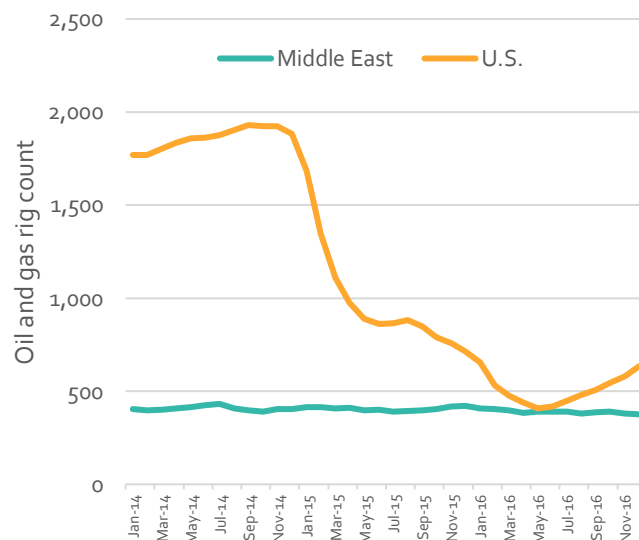
Some politicians will make costly and fruitless attempts to hold back the tide instead of intelligently sailing with it and offering a helping hand to those who are stranded. Trying to bet on winners in the new energy economy is doomed to fail. But success is achievable for individuals, companies and countries by being flexible, open-minded and a little lucky.

Rig count snapshot

- Iran had 57 active rigs in December 2016 (OPEC December monthly report). Iran is the third largest OPEC driller in terms of number of rigs after Saudi Arabia and Venezuela.
- Kuwait oil rig count fell by 4 and Saudi by 2 in December 2016.
- Middle East total rig count declined to 376 in December from 380 in the previous month.



- US oil-directed rig count closely tracks oil price (with a 3-month lag).
- 634 total rigs in December for the US (+54 ne rigs from November) vs 376 in the Middle East (-4 rigs).



Fuel prices and subsidy reform

The UAE was the first GCC country to remove fuel subsidies in August 2015. The other GCC countries, Saudi Arabia, Oman, Bahrain, Qatar and Kuwait have reduced subsidies.

The following table represents January 2016 gasoline and diesel pump prices (\$/litre) in the GCC countries.

	<u>Old (\$/litre)</u>		<u>New (\$/litre)</u>	
	Gasoline 95	Diesel	Gasoline 95	Diesel
Saudi Arabia	0.16	0.07	0.24	0.12
UAE	0.45*	0.47*	0.49	0.53
Qatar	0.37*	0.37*	0.43	0.40
Bahrain	0.27	0.42	0.43	0.37
Kuwait	0.21	0.36	0.35	0.31
Oman	0.46	0.39	0.49	0.51
US (Pre-tax)	0.62	0.57	0.59	0.52

*Previous month prices; Source: EIA; News Sources

OPEC Watch

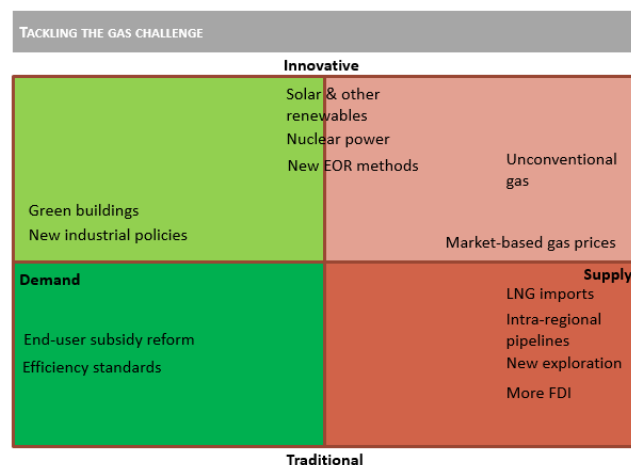
Strategy	Comments
Organization changes	<ul style="list-style-type: none"> The group appoints new secretary general, Nigeria's Muhammed Barkindo, effective 1st August 2016 Confirmed the re-entry of Gabon in June 2016 since it left in 1995; current production at 213 kbpd in Dec. 2016 Indonesia suspended from OPEC on Nov 2016
Support from non-OPEC	<ul style="list-style-type: none"> Non-OPEC agreed to reduce output by 558 kbpd, short of the initial target of 600 kbpd Russia to cut 300 kbpd and other non-OPEC countries another 258 kbpd including Kazakhstan, Azerbaijan and Mexico Russia reduced production by 100 kbpd in the first few days of January Oman and other non-OPEC producers agreed to reduce output by 558 kbpd; Oman reduced its crude output by 45 kbpd to 970 kbpd in January
Production limit (Libya and Nigeria exempt from deal)	<ul style="list-style-type: none"> Saudi Arabia, the UAE and Kuwait will bear the main burden of the 1.2 Mb/d cuts Saudi Arabia and Kuwait announced on the 12th of Jan that they had already cut production by more than they committed to Iraq agreed to production cuts - Iraq will cut 210 kbpd by end of January and has already slashed 170 kbpd. The agreement has not factored in cuts in output from Iraqi Kurdistan Iran has been assigned a cut to a theoretical pre-sanctions level- the new quota is about 100 kbpd above what it is producing today
Next OPEC meeting	<ul style="list-style-type: none"> 25th of May 2017 - 172nd (Ordinary) OPEC Meeting Vienna, Austria

Robin Mills talks on OPEC:

1. [OPEC-Russia Roadshow Heads to Vienna](#)
2. [OPEC agrees on cut but will it have an impact?](#)



Robin Mills spoke at the "[Oilfields Minerals & Markets Forum in Dubai 2017](#)" – example of presentation slide



Key MENA Energy Scorecard

MENA energy price reform	●	↔	Abu Dhabi to raise electricity/water prices in 2017; Egypt to raise electricity prices in 2017; Kuwait govt. will subsidise 75 litres of fuel a month for its citizens, ~ 30% of the original price increase that became effective in September; government dismissal in Kuwait over fuel subsidy debate
MENA unconventional oil & gas	●	↔	Aramco planning to invest \$334bn by 2025 on its shale gas programme and other oil and gas projects; much of additional gas supply in Saudi Arabia from 2020 onwards likely from unconventional gas resources; Phase 1 BP Oman's Khazzan project 80% complete and on track to deliver first gas near the end of 2017 with 38 of the initial 50 wells drilled; BP Oman has received the delivery of casing pipes for Khazzan from TMK Gulf International Pipe Industry; approved expansion of Khazzan to 1.5 Bcf/d
MENA alternative energy	●	↑	Saudi Aramco plans commissioning of first wind project by Jan 2017 to generate 2.75MW; Saudi Arabia is seeking \$30-50 billion in solar and wind energy investment with a capacity of 10 GW by 2023; UAE set target for 50% of its power to be generated from clean energy by 2050; Dubai Municipality has opened bids for the contract to build its planned waste-to-energy project
MENA nuclear power	●	↔	Abu Dhabi's \$24.4 bn Baraka nuclear power plant reaches financial close; KEPCO takes 18% stake in Baraka; Jordan's \$10bn 2 GW atomic power plant still in feasibility stage; Egypt plans to sign contract for the construction of the 4.8GW El-Dabaa nuclear facility with Rosatom; Saudi Arabia starting its nuclear programme with progress on the design for two reactors with a combined capacity of 2.8GW
Energy infrastructure security	●	↔	Libya's National Oil Corp. said oil pipeline shut down for more than 2 years has reopened in western Libya. NOC estimated reopening of the pipeline along with increasing production from Sharara and El Feel fields could increase crude supply by 270 kbpd within 3 months; ISIS captured Al-Mahr, Jazzal and Jihar oil/gas fields in Syria after heavy clashes with the National Defence Forces
OPEC production	●	↓	OPEC total production of 33.085 Mb/d in Dec, -220.9 kbpd from Nov; biggest decrease came from Saudi Arabia with -149.3 kbpd; demand for OPEC crude in 2016 estimated at 31.2 Mb/d, 1.8 Mb/d higher than in 2015. In 2017, demand for OPEC crude forecast at 32.1 Mb/d, a further increase of 0.9 Mb/d over 2016
East Mediterranean gas commercialisation	●	↑	Lebanese government has passed two decrees allowing the start of tendering for oil and gas blocks. Lebanon estimates 96 Tcf of gas and 865 MMbbl resource potential offshore; Energean Oil & Gas SA will develop deep-water Karish and Tanin gas and condensate fields offshore Israel and announced development plan using floating production, storage, and offloading vessel; Total to start drilling in Block 11 in Cyprus in June 2017 (pushed back from April) due to uncertainty over location of the company's onshore support base
Egypt energy reform	●	↑	The government has plans to make further significant cuts to subsidies in 2017 and phase out subsidies by 2019; Industrial users now pay \$7 MMBtu for gas; Struck deal with Eni to pay \$4.00-5.88 MMBtu of natural gas on the Zohr field
Kuwait developments	●	↑	Kuwait announced it cut production by 130 kbpd in January with current production at 2.8 Mb/d; UAE-based Dodsai was awarded \$868m contract to construct feed pipelines at Kuwait Oil Company's New Refinery Project to supply 615 kbpd of crude and 300 MMcf/d of gas feedstock
Abu Dhabi developments	●	↑	ADNOC and Occidental plan to expand Al Hosn facility which will increase sour gas processing by 50%; Inpex Corp. and ADNOC ink deal to extend the duration of joint development of Satah and Umm Al Dalkh oil fields through 2042 from current expiration date of Mar. 8, 2018; BP awarded 10% of ADCO concession alongside Total, INPEX Corporation, and GS Energy who hold interests of 10%, 5% and 3% respectively. ADNOC continues to look for partners to take up the remaining 12%; China's CEFC reported to have withdrawn
Iraqi Kurdistan (KRG) developments	●	↔	KRG independently exported 531 kbpd in December, meaning Iraq-wide exports were 4.051 Mb/d – topping the country's previous high in November, of 4.045 Mb/d; DNO made a new discovery at the Peshkabar field in Iraqi Kurdistan
Federal Iraq developments	●	↑	Iraq increased crude oil production in Dec by 42.6 kbpd to 4.632 Mb/d according to secondary sources; Iraq's federal government exported 3.52 Mb/d in December topping a previous high of 3.471 Mb/d in November according to SOMO; Iraq had pre-qualified 19 firms to bid on 12 oil field developments and announced to reassess tender by end of 2017; development of Mansuriya gas field has been put on hold
Iran developments	●	↑	Iran increased crude oil production by 9.5 kbpd in Dec to 3.72 Mb/d; Stopped electricity exports to Iraq in Jan 2017 because contract expired at the end of 2016 and there were unpaid bills exceeding \$1bn – there will be new negotiations; Turkmenistan stopped gas supplies to Iran due to overdue debts of \$1.8bn for supplying gas during winters of 2007-8; NIOC plans to carry out exploration activities in Oman Sea region according to Iran's 6 th national development plan

●	Very positive	↑	Improvement in last month
●	Positive	↔	No change
●	Negative	↓	Deterioration in last month
●	Very negative		

b/d = barrels per day

Bcf/d = billion cubic feet per day

Tcf = trillion cubic feet

MMcf/d = million cubic feet per day

Mb/d = million barrels per day

kbpd = thousand barrels per day

Oil and gas has itself to blame if millennials are not prepared to work in the industry

By Robin Mills

A version of this article appeared in The National newspaper on January 15, 2017

The sleek modern lines of NYU Abu Dhabi were the fitting venue last week for a debate on the next generation in the energy business. The Gulf Intelligence UAE Energy Forum put forward the proposition that "millennials are not ready to take over the oil and gas industry from the baby boomers". As the generation born in the 1950s and '60s gives way to those of the '80s, will this be a smooth transition or a shock?

The changeover is really a matter of necessity, not choice. The youngest baby boomers today are 53. The oil industry has for some years been going through its "great crew change" as the older generation retires, and the current oil price slump is only accelerating that.

The UAE Minister of Energy Suhail Al Mazrouei, present at the event, emphasised his own youth, at 43. That makes him part of the industry's emerging leadership, in "Generation X" like myself, between the boomers and millennials, but the layoffs of the '90s have left this generation worryingly thin. Meanwhile, youth employment and the dearth of high-quality jobs is a concern around the world.

The millennials' fitness for their role really falls into two parts. Portrayed as "tech-savvy" – a stereotype that overpraises some while denigrating the earlier generation that actually created the internet – they nevertheless have the technical skills required. Gaining experience takes time, but oil and gas

companies could change the mindset to bring young people on board more quickly. The age of big data and the Internet of Things offers many opportunities.

It was the same when I entered the industry in the late '90s. Digital modelling of oilfields was just becoming mainstream, creating a culture clash between the old school who emphasised "knowing the rocks", and the juniors whom they derided as "Nintendo geologists". But the unlocking of 3D seismic analysis and computer optimisation of field development kept the industry alive through the '90s slump.

Although capable, do the millennials want to join the oil and gas business? In the West, at least, it is widely seen as dirty, contributing to climate change, professionally dull, and a "sunset" industry with little future.

By contrast, within the field of energy, the image of solar power and electric vehicles is galvanised by the charismatic Elon Musk of Tesla Motors, SolarCity and SpaceX. More widely, tech start-ups are seen as the speedy way to fame and riches, as well as to "changing the world" through innovations such as internet toasters that print faces on bread.

The traditional energy industry has done a poor job of advertising itself. Under attack from environmentalists, social activists

and consumer advocates, it has been secretive and defensive.

But it has a great story to tell. What other industry offers well-paid international careers in some of the world's most exciting countries, innovative technologies making multibillion dollar projects possible from the Siberian tundra and the deep seas to the Sahara desert, shifts in commodity markets that transform nations and the world economy, and the mission of bringing modern energy to the billions of people without it?

Of course, the petroleum business has to battle in the court of public opinion with the burden of a US contingent that has aligned itself with the most regressive anti-climate forces. But making oil and gas compatible with a liveable climate is a task to be achieved from within the industry, not outside it.

While millennials are ready to take over, the converse question is whether the energy industry is ready for them. The oil companies have to capture the sense of mission, fun and self-realisation associated with a Google, without losing their professional integrity.

The audience voted narrowly that the millennials are not ready. That would be bad news for the bedrock of the regional economy. But if the next generation is not ready and willing, the corporations have only themselves to blame.

About Qamar Energy – what we do

Qamar Energy provides leading-edge strategy, commercial and economic consulting across the energy spectrum



Leading-edge energy consulting and advisory



Our professionals have more than 20 years of energy experience



Energy market intelligence



Experience across the energy value chain



Our clients



Private investors



Investment banks



Majors and International Oil Companies



Oil traders



National Oil Companies and governments



Oil service companies

About Our CEO



Robin Mills

CEO

Robin established Qamar Energy to meet the need for regionally-based Middle East energy insight and project delivery. He is an expert on energy strategy and economics, described by Foreign Policy magazine as **“one of the energy world’s great minds”**. Robin is the recipient of the 2016 ‘Energy of Word’ Global prize at the St. Petersburg International Economic Forum.

Prior to this, he led major consulting assignments for the EU in Iraq, and for a variety of international oil companies on Middle East business development, integrated gas and power generation and renewable energy.

Robin worked for a decade for Shell, concentrating on new business development in the UAE, Qatar, Iraq, Iran and other Middle Eastern countries, when he was described as the “Shell expert on Iran”.

He subsequently worked for six years with Dubai Holding and the Emirates National Oil Company (ENOC), where he advanced business development efforts in the Middle East energy sector, including major gas import schemes for Dubai and upstream developments in Iraq, Qatar, Yemen, Pakistan, Turkmenistan, Algeria and elsewhere.

He is the author of two books, *The Myth of the Oil Crisis*, which evaluates global long-term oil supply, and *Capturing Carbon*, the first comprehensive overview of carbon capture and storage for the non-specialist. He is the columnist on energy and environmental issues at The National newspaper (Abu Dhabi), and comments widely on energy issues in the media, including Foreign Policy, the Financial Times, The Atlantic, CNN, CNBC Arabiya, BBC, Al Jazeera, Bloomberg, Sky News and others.

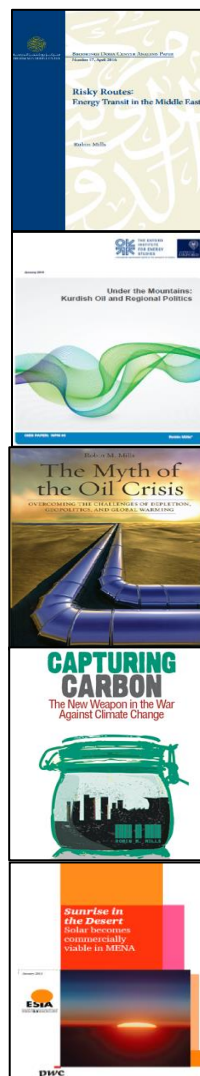
Robin authored the ground-breaking study, *Sunrise in the Desert: Solar becomes commercially viable in MENA*, on solar power competitiveness in the Gulf (with PWC/Emirates Solar Industry Association) as well *Under the Mountains: Kurdish Oil and Regional Politics* for the Oxford Institute for Energy Studies and *Risky Routes: Energy Transit in the Middle East* for the Brookings Doha Center.

He has been Non-Resident Fellow for Energy at the Brookings Doha Center. He holds a first-class degree in Geology from the University of Cambridge, and speaks Arabic, Farsi, Dutch and Norwegian.

Robin Mills spoke at the [“Oilfields Minerals & Markets Forum in Dubai 2017”](#). The event covered all the key issues and topics influencing oilfield mineral supply and demand in the Middle East and Central Asia.

Robin provided insight on “Meeting the Middle East Gas Supply Challenge”.

Click on publication for more information



Robin Mills receives the 2016 ‘Energy of Words’ at the Global Energy Prize in St. Petersburg, Russia.

[For prize announcement click here](#)