Non-associated gas push changes Saudi game

Saudi Arabia is waking up to the fact the volume of crude available for export may be in decline. To curb rising domestic oil consumption, Saudi policy makers are making a push to bring non-associated gas supplies on stream, writes **James Gavin**

Crude oil fundamentals are driving Saudi Arabia's gas ambitions. Domestic oil consumption averaged 2.4 million barrels a day in 2010, up from 1.9 million b/d in 2007 according to data supplied by the government to the Joint Oil Data Initiative. Domestic consumption in the first quarter of 2011 was 2.9% higher than the same period of last year, according to Riyadh-based investment bank Jadwa.

Policy makers fear the extent to which rising domestic demand will erode the kingdom's crude oil export potential, particularly once the global economy revives and ramps up the call on OPEC crude. "Demand for oil has been growing fast in the kingdom, raising all sorts of issues in terms of opportunity cost and oil export potential," said Hakim Darbouche, a Saudi energy analyst at the Oxford Institute of Energy Studies.

Diversifying the economy through the expansion of downstream energy-intensive industries has been a priority for years now, said Darbouche - but the recent shift in gear towards capitalising on the kingdom's gas resources is the result of the spike in demand for crude from domestic sources, such as power generation.

Saudi power stations are expected to burn 1.2 million b/d of crude this year, around double the level in 2009, due to the lack of natural gas feedstock. Some petrochemical plants have also reportedly struggled to obtain promised feedstock supplies.

The message is clear: the kingdom needs to produce more gas - and fast.

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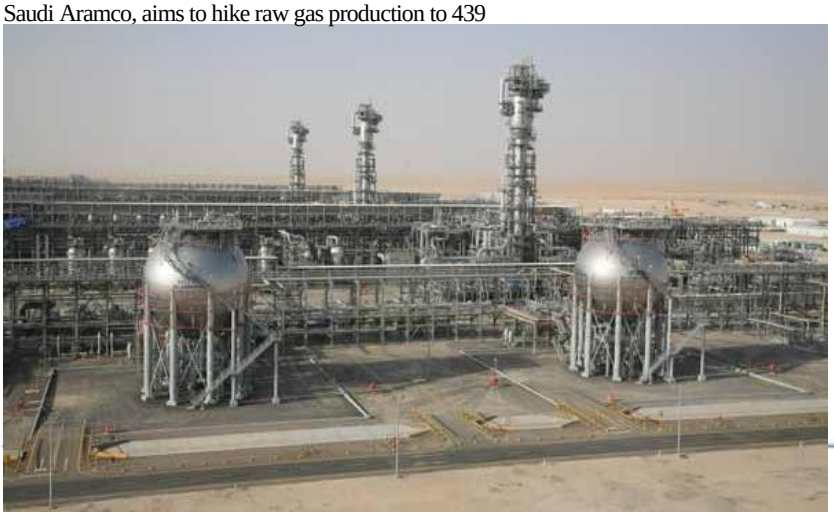
Saudi focus

The Saudis' initial response is focused on three massive gas projects, Karan, Wasit and the Shaybah natural gas liquids project, all due on-stream before the end of 2013. Combined the projects will add another 190 million cubic metres per day of new capacity, expanding existing production by 70%. The state-owned national oil company, Saudi Aramco, aims to hike raw gas production to 439 MMcm/d by 2015, from 289 MMcm/d in 2010.



Saudi Aramco plans to raise raw gas production to 439 MMcm/d by 2015, from 289 MMcm/d in 2010. (Aramco)

Significantly, two of these, Wasit and Karan, are non-associated gas projects and are therefore unconstrained by the kingdom's OPEC quota restrictions. Around 55% of the kingdom's gas reserves are associated with oil, but the Saudis need to find reservoirs of non-associated gas to try to wean the country off crude, say analysts.

"The shift to non-associated gas is an outcome of the recognition that it can no longer continue with the same policy of depending on associated natural gas production," said Justin Dargin, a Gulf energy specialist at Harvard University's Belfer Center.

"Back in the third quarter of 2008 when OPEC announced drastic production cuts, most of the Gulf States were already going through a natural gas shortage but they exacerbated that shortage through OPEC quotas simply because most gas is produced from associated gas fields. They had an existential choice: do we focus on our oil sector and try to defend the price, or do we attempt to stabilise natural gas production? Most of them chose the former," said Dargin.

Karan, the first non-associated gas field developed by Aramco, hit a targeted production increase in raw gas in the summer of 2011 of 11-13 million MMcm/d of raw sour gas - a welcome addition to help sate peak summer power demand, but unlikely to be enough to replace much more than 50,000 b/d of oil and products burned in power generation.

The $10 billion Karan project has received strong attention from Aramco chief executive Khalid al-Falih, who has more experience in pushing gas developments than any of his predecessors and who has committed the state oil company to fast-tracking natural gas expansion. Construction on Karan began in 2009, so first gas by 2011 suggests a strong headwind for the project. By June 2012, Karan will be set to triple production to 42.5 MMcm/d before reaching its target production level of 51 MMcm/d by April 2013.

Drilling at two other non-associated offshore sour gas fields, Arabiyah and Hasbah, will add 71 MMcm/d to production by 2014. Gas from the fields will be piped to central processing facilities at Wasit.

Driving factors

Fast-tracked gas production at Karan certainly points to a sense of urgency among policy makers to develop domestic gas resources and meet fast-growing energy needs. But the strategy to develop non-associated gas reserves has another driver, said Darbouche, given the disappointment with gas exploration in the Empty Quarter area.

In 2004, the Saudis' invited foreign companies to form joint ventures with Aramco to explore for gas in the remote and inhospitable Rub al-Khali (Empty Quarter),

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Saudi gas continued...

hoping to secure around 56.6 MMcm of gas, but the four joint venture groups, which included Shell and Total, have failed to find commercial gas reserves.

However, the Saudi's haven't given up hope yet. In early September 2011, the Royal Dutch Shell-Aramco South Rub al-Khali (SRAK) joint venture named a new chief executive, Saleh Al-Dawas, an Aramco upstream executive. Dawas will oversee SRAK's exploration activities for the next four years, drilling in the Kidan area bordering Abu Dhabi. The partners are looking to develop some 28 MMcm/d of gas from the highly sulfurous field.

Speculation inside the kingdom suggests SRAK is preparing an announcement of a significant discovery at Kidan.

In the meantime, Aramco will keep exploring for gas: it says only 15% of Saudi Arabia has been adequately explored. Aramco focus on drilling for gas in the shallow waters of the Red Sea, before moving on to deeper wells in 2012. The company is also exploring in the northern onshore Jalamid area, rich in mineral deposits. Aramco claims early reservoir tests of the Jalamid Well 3 showed commercial gas flows at a rate of 0.3 MMcm/d.

New projects

Back offshore, Al-Khafji Joint Operations (KJO) - a joint venture between Saudi Arabia and Kuwait - is preparing for early 2012 to launch a major engineering, procurement and construction contract for the non-associated gas field that lies in the neutral zone shared by the two Gulf States.

These projects are all encouraging, but Aramco may still find it a challenge to keep pace with rising gas demand of an estimated 7% a year, especially if no significant discoveries are made in the Empty Quarter area.

In the meantime, the government could sweeten production terms to encourage investment in the gas sector, say analysts. "If you look at the geological formation of the kingdom it's very hydrocarbon rich, so the potential for hitherto undiscovered natural gas reservoirs should be high therefore the authorities are developing a comprehensive strategy to revise investment law and create the necessary incentives to stimulate even greater natural gas production," said Dargin.

Reform of a pricing system under which developers are forced to sell gas at a capped rate of $0.75 per million Btu (MMBtu) - well below the $5/MMBtu level considered commercially feasible to develop gas fields - should be the first priority.

Aramco must also address questions over its aptitude for transforming into a more gas-prone entity. Al-Falih has given strong direction in the gas sector, but it will need foreign partners on board if ambitions are to be met. Only 25% of the remaining estimated 2.8 trillion cubic metres of gas is "easy access" conventional gas. Aramco will need to develop its technical skill to extract the remaining gas which is considered sour or in tight formations.

"They certainly have the means to bring in experienced service companies for the development of some fields, but for big projects they may need the experience of big international oil companies. These, however, need attractive terms to be able to invest," said Darbouche.

The renewed focus on non-associated gas is a potential game changer for Saudi Arabia. But, like other Gulf Opec producers, it is ultimately oil that determines its strategy for pushing ahead with non-associated gas developments. Even if the Kingdom becomes gassier, it will be to retain its pre-eminent position as an oil producer, rather than a gas producer, of note.

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