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Saudi Arabia grapples with gas conundrum

By Peter Shaw-Smith

Bright lights of Riyadh: ambitious industrial plans and heavy subsidies will increase demand for electricity

As the summer sun burns and the air-conditioning units run round the clock, attention in Saudi Arabia focuses on energy demand – and in particular the kingdom's gas conundrum.

According to the annual report of Aramco, the national oil company, the intention is that production of raw gas – unprocessed natural gas – should reach 15.5bn cu ft a day (bcf/d) by 2015 from 10.2 bcf/d last year.

Progress towards this goal took place last month when the offshore Karan field began production. It is set to produce on average about 0.45 bcf/d through the rest of this year.

When Karan becomes fully operational in 2013, this non-associated field – meaning that it is not part of an oilfield – is set to augment the kingdom's gas output by 1.8 bcf/d.

By then, Saudi Aramco also plans to bring on another 5 bcf/d of capacity, half at the Wasit field, where the gas is non-associated, and half via a natural gas liquids project at the large Shaybah oilfield.

But experts warn that the kingdom's ambitious industrialisation plans and heavy subsidies mean that the new gas supplies are unlikely to lower the growing reliance on oil for electricity production.

HSBC estimates Saudi Arabia will burn as much as 1.2m barrels a day this year on electricity generation, almost double the 2010 amount, meaning a loss in valuable exports.

"It's hard to believe the Saudis will have enough gas for all these downstream projects without bringing significant amounts of gas on stream, which in turn would take bold policy changes – on pricing in particular – or [require imported] gas," says Hakim Darbouche, research fellow at the Oxford Institute for Energy Studies.

In a report last month, Jadwa Investment, a Riyadh brokerage, predicted that by 2030 Saudi Arabia may have only 6m b/d for export, with 5.5m b/d being required domestically.

Despite reserves of 283,000bn cu ft, about 55 per cent of Saudi Arabia's gas is associated with oilfields and is therefore hostage to oil production quotas, set by Opec, the oil producers' cartel. In addition, only about 25 per cent of the kingdom's non-associated gas is free from sulphur and is therefore easily recoverable.

Saudi Arabia has striven to find more gas by allowing international oil companies access that it does not permit in the oil sector – but results have been mixed at best.

Four Aramco exploration joint ventures in the Empty Quarter were launched in 2004: partners **Royal Dutch Shell**, Russia's **Lukoil**, China's **Sinopec** and a consortium of Italy's **Eni** and Spain's **Repsol**, have seen varying results, with the latter two pulling out.

“Other than the four JV partners, there is not much other activity by IOCs [international oil companies] in the market,” says Justin Dargin, an energy expert at Harvard University.

Manuel Santiago, head of oil and gas at Royal Bank of Scotland, says that only Shell and Lukoil had any success in the Empty Quarter.

“There are pretty high entry barriers for small and independent players . . . It is seen as Saudi Aramco’s fiefdom, not something they [the IOCs] are falling over themselves to look at. If there were a more attractive regime there would be a lot more interest in exploration and production,” Mr Santiago says.

The Energy Information Agency, in its most recent country report, cites Aramco as saying that only 15 per cent of Saudi Arabia has been “adequately explored” for gas. On the conventional side, there is a lot of interest in the Red Sea, a new area for gas exploration, energy experts say. Onshore is also relatively unexplored outside the Empty Quarter, Mr Darbouche says.

In addition, according to the EIA, almost 15 per cent of total Saudi natural gas production is lost to venting, flaring and re-injection.

Significant domestic subsidies complicate the picture. The kingdom is committed to producing 10 per cent of the world’s petrochemicals output by 2015, but the industry benefits from feedstock prices of only $0.75 per million British thermal units, according to Jadwa. This is well below current global market levels of at least $4/mmBtu, according to Bloomberg data.

Al Rajhi Capital estimates that several petrochemical plants are not receiving full feedstock deliveries because of gas shortages, even though the industry’s total allocation was supposed to be a modest 0.8 bcf/d of processed gas last year.

Aramco has been selling oil to power generators at an equivalent price of $0.46/mmBtu, and all new power capacity has been running on oil because of a dearth of gas, Mr Darbouche says.

Analysts say that the $20bn Sadara Chemical Company joint venture, between Aramco and **Dow Chemical** of the US, could be based on a medium-term increase in feedstock pricing, but this is unlikely to breach the $2/mmBtu barrier.

“If you look at Saudi plans for power generation expansion going forward, you’ll see that this trend [of new power capacity running on oil] is likely to continue, which means [domestic] oil consumption will continue to grow,” Mr Darbouche says.