

Saudi Arabia: the sands run out

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Last month's foiled attack on a Saudi Arabian oil installation demonstrated yet again the world's extreme vulnerability to any check on oil supplies. But what if the Saudi oilfields are running lower on untapped supplies than the kingdom, and the West, have estimated?

By Michael T. Klare

As concern rises in the United States and elsewhere over the future availability of oil, the global community of energy experts has split into two camps: the optimists believe that oil is abundant and will remain so for years to come, while the pessimists think supplies will become increasingly scarce. For both, Saudi Arabia, the world's leading oil producer, has a pivotal role. The optimists believe that it will continue to expand its output, thereby satisfying ever-increasing global demand; the pessimists contend that its oilfields will soon decline, eliminating any prospect of expanding the world's net oil supply. To reach any conclusions about world supply, we must first consider Saudi Arabia.

It is impossible to exaggerate Saudi Arabia's importance in the global oil-supply equation. Not only is it the leading producer and exporter of oil, but it is also the only major supplier with substantial spare capacity, allowing it to boost output quickly in times of crisis. This was of decisive importance in 1990, when Iraq invaded Kuwait and both countries' production was no longer on the market. By swiftly upping its own output, Saudi Arabia prevented another global oil shock like those after the Arab oil embargo of 1973-74 and the Iranian revolution of 1979.

Given its unique ability to increase output in times of crisis, Saudi Arabia has long been viewed in Washington as a vital part of US energy security. When the price of crude began its meteoric rise in spring 2005, the first thing President George Bush did was to invite Crown Prince (now King) Abdullah to his ranch in Crawford, Texas, to plead with him to boost Saudi output. "The crown prince understands that it is very important [to] make sure that the price is reasonable," Bush told reporters before the meeting ([1](#)).

After the meeting, a Bush aide announced that Abdullah had promised to increase Saudi output, and noted that this "can't help but have a positive downward effect" on oil prices ([2](#)). Although Abdullah's promises to increase Saudi output have yet to produce a marked decline in energy prices, Washington has continued to put pressure on Riyadh to expand its production.

The oil future

Even more important than its role as a swing producer in times of crisis is Saudi Arabia's expected contribution to future oil output. "With one-fourth of the world's proven oil reserves," the US department of energy (DoE) observed in 2004, "Saudi Arabia is likely to

remain the world's largest net oil exporter for the foreseeable future" (3). Every assessment released by the DoE indicates that Saudi oil production will continue to grow and that it will play a critical role in satisfying the ever-increasing global demand for petroleum. The DoE predicts that Saudi Arabia will provide over one-quarter of all new oil added to global supplies between 2001 and 2025.

To appreciate fully Saudi Arabia's pivotal role, it is useful to consult the projections of future supply and demand released each year by the DoE. In 2004 it predicted that world oil demand would rise by 57% between 2001 and 2025, from 77m to 121m barrels per day (mbd). In response to this, Saudi oil output was expected to rise by 120% during this period, from 10.2mbd to 22.5mbd, a net increase of 12.3mbd. No other country or group of countries came close in anticipated growth rates. Russia and the former Soviet republics of the Caspian Sea region have a combined anticipated increase of 8.5mbd; Iran, Iraq, and Kuwait were jointly projected to achieve an increase of 7.6mbd; and Nigeria, the leading producer in Africa, was expected to gain only 1.6mbd. Most other regions were projected to experience declining or stagnant production, so Saudi Arabia's addition was deemed essential to satisfying anticipated demand (4). But is Saudi Arabia truly capable of increasing its oil output by 12.3mbd - or by any amount at all? This question has stirred up controversy among oil analysts.

The controversy began in February 2004, when the *New York Times* reported that a number of analysts had concluded that Saudi Arabia's major oil-fields had been more thoroughly depleted than was commonly thought, raising significant doubt about its ability to boost output beyond the then current rate of 9-10mbd. Although its production had kept pace with international demand in the past, said the *Times*, its "oil-fields now are in decline, prompting industry and government officials to raise serious questions about whether the kingdom will be able to satisfy the world's thirst for oil in coming years" (5).

Anger and alarm

This article provoked anger and alarm in Saudi Arabia. A few days later senior officials of Saudi Aramco, the state-owned oil company, told an audience in Washington that the company was fully capable of boosting its output in future. "We have the potential to add more oil than anyone else," said Mahmoud Abdul-Baqi, Aramco's vice-president for exploration. "We will continue to deliver for another 70 years at least" (6). The Saudi Arabian oil minister, Ali al-Naimi, was even more emphatic: If world demand continued to rise, "we're going to be ready to meet it" (7).

These assurances were reiterated by the US DoE, which generally assumes an optimistic stance in the debate over global petroleum availability. In the 2004 edition of its *International Energy Outlook*, the DoE reported that Saudi Arabian officials "are confident in their ability to sustain significantly higher levels of production capacity well into the middle of this century" (8).

This was not the final word. In May 2005 Houston banker Matthew Simmons published a bombshell of a book, *Twilight in the Desert*, in which he claimed that most major Saudi oil-fields are in decline and incapable of sustaining higher output: "There is only a small probability that Saudi Arabia will ever deliver the quantities of oil that are assigned to it in all the major forecasts of world oil production. Saudi Arabian production is at or very near its peak sustainable volume... and it is likely to go into decline in the very foreseeable future" (9).

Four main points

Simmons is not a militant environmentalist or an anti-oil partisan. He is the chairman and CEO of one of the world's leading oil-industry investment banks, Simmons & Company International. For decades he has been pouring billions of dollars into the energy business, financing the exploration and development of new oil reservoirs around the world. He has become a friend and associate of many top figures in the oil industry and the US government, including Bush and the vice president, Dick Cheney. He has also accumulated a storehouse of information about the status of major oil fields, making him one of the most knowledgeable figures in the field. That is why his dour assessment is so significant.

His argument boils down to these points:

- ▶ most of Saudi Arabia's oil is extracted from four or five giant fields;
- ▶ these were first developed 40-50 years ago, and have since given up most of their easily extracted petroleum;
- ▶ to maintain high levels of production in these fields, the Saudis have increasingly come to rely on the use of water injection and other secondary recovery methods to compensate for the drop in natural field pressure;
- ▶ in time, the ratio of water to oil in these underground fields will grow to the point where further oil extraction becomes difficult, if not impossible.

Twilight in the Desert is not easy to read. Most of it consists of a detailed account of Saudi Arabia's vast oil infrastructure, relying on technical papers written by Saudi oil engineers on aspects of production in particular fields. Much of this has to do with the ageing of Saudi oilfields and the use of water injection to maintain the pressure in underground reservoirs, which can result in the degradation of untapped supplies. By drawing on these technical studies, Simmons is able to demonstrate that Saudi Arabia's largest fields are rapidly approaching the end of their productive life.

The Saudis responded to these allegations with anger and alarm. At a conference in Washington, Naimi disputed the claims and insisted that his country was fully capable of raising its output as needed. "I want to assure you here today that Saudi Arabia's reserves are plentiful and that we stand ready to increase output as the market dictates," he declared on 17 May 2005. At a meeting in Paris, he announced plans to increase Saudi oil production from 10mbd to 12mbd by 2009 and indicated that it could rise to as much as 15mbd if demand continued to expand ([10](#)).

But this time there has been greater scepticism from experts. Many analysts have noted that the extra oil being pumped by Saudi Arabia is high in sulphur content, making it unusable for many refineries, and that the Saudis are not making great progress in efforts to increase output. Speaking of the encounter between Bush and Abdullah, Jason Schenker of the Wachovia Corporation said: "There will be no real change as a result of this meeting" ([11](#)).

The US changes its mind

The most striking indication of this change in outlook is the new assessment in the DoE's *International Energy Outlook 2005*, released last July. The 2004 edition gave that Saudi

12.3mbd increase we mentioned, but the new edition projected an increase of only 6.1mbd by 2025, less than half as much (12). No explanation was provided for this turnaround, but it can only be assumed that the analysis of Simmons and other sceptics has begun to influence official thinking in Washington.

It is likely that even the DoE's much-reduced projection will prove wildly optimistic. Not even Naimi, in his most expansive moments, has claimed that Saudi Arabia can push its oil output above 15mbd, and he has never explicitly promised that it will rise much above 12mbd. If Simmons is right, even that level may prove beyond the kingdom's reach.

None of this discussion has addressed the separate question of whether political conditions in Saudi Arabia will affect oil production. A major domestic upheaval, such as that in Iran after the overthrow of the shah in 1978-79, would almost certainly produce a downturn in production, possibly for many years. A powerful terrorist attack on Saudi oil facilities (such as almost happened last month) would have a similar result.

But even if conditions remain relatively stable, we should begin to plan for a world in which the global supply of oil will probably never satisfy the insatiable demand.

Original text in English

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(1) See "Bush-Saudi talks focus on long-range oil plan," [Reuters](#), 25 April 2005.

(2) "[Bush urges Saudis to boost oil production](#)," *Los Angeles Times* online edition, 25 April 2005.

(3) US Department of energy, energy information administration (DoE/EIA), "[Saudi Arabia, Country Analysis Brief](#)", 23 June 2004.

(4) DoE/EIA, *International Energy Outlook 2004*. (Washington, DC, 2004), tables A4 and D1.

(5) Jeff Gerth, "Forecast of rising oil demand challenges tired Saudi fields", *New York Times*, 24 February 2004.

(6) "Saudis refute claims of oil field production declines", *Oil and Gas Journal*, 8 March 2004.

(7) "Saudi oil minister Al-Naimi sees kingdom sustaining oil supply linchpin role for decades", *Oil and Gas Journal*, 5 April 2004.

(8) DoE/EIA, *International Energy Outlook 2004*, op cit.

(9) Matthew R Simmons, *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy*, John Wiley, Hoboken, New Jersey, 2005.

(10) Doris Leblond, "Saudi production growth detailed in Paris oil summit," *Oil and Gas Journal*, 2 May 2005.

(11) "Saudis offer oil capacity plan, no immediate relief," [Bloomberg News](#), 25 April 2005.

(12) DoE/EIA, International Energy Outlook 2005, Washington DC, 2005, table E1.

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