A race against time

Oil producers are under intense pressure to boost production, but the lack of spare capacity and constraints in almost every area of the industry are beginning to take their toll

Ashok Dutta reports

Nearly three decades ago, Alan Kay – the inventor of the laptop computer and architect of the modern Windows system – said: "The best way to predict the future is to invent it. Smart people with reasonable funding can do just about everything that doesn't violate many of Newton's laws."

In the post-oil embargo era Gulf oil producers have taken him at his word. Blessed with 723,000 million barrels or more than 60 per cent of the world's proven conventional oil reserves, the giants of OPEC have dictated the movements of international markets and the long-term development of the industry.

Until now, that is. With oil prices pushing $70 a barrel, questions are being raised in all quarters of the industry about the ability of producers to step up to the supply challenge. Spare capacity constraints, ageing reservoirs and growing shortages of equipment, trained manpower and new contracting capabilities have all taken their toll on oil producers. Probably for the first time in the past three decades, both the upstream and the downstream sectors are in the grip of a major capacity crunch.

Thin cushion

The spare capacity of the six main Gulf producers in August stood at a total of just 1.7 million barrels, according to the London-based Centre for Global Energy Studies (CGES – see table). This is its lowest ebb since 2003. Undoubtedly, a prime driver is the role played by OPEC in the past two years in meeting the growth in global demand for energy. But even though producers are close to the wire, the scenario downstream is unlikely to change anytime soon, with the US' Energy Department recently projecting the demand for refined products to reach 115.5 million barrels a day (b/d) by 2025, from current levels of 82.8 million b/d. Put simply, there will be a need to add some 1.6 million b/d of new capacity each year.

Upstream, the challenges go beyond the need to boost capacity. "The region's giant reservoirs are clearly maturing in line with their sustained production," Sadad Ibrahim al-Husseini, a former vice-president (exploration and production) of Saudi Aramco, said at a leading industry conference* in London in late September. "Several producers are encountering challenges in expanding capacities, while sustaining high production rates and maintaining resource recovery targets." Many older producing fields are deteriorating rapidly as a result, while producers are being forced to adopt new extraction techniques.

The situation is critical in Iraq and Iran, which together hold reserves of at least 248,000 million barrels. For Iran, to tap into reserves at the giant fields of Azadegan and Ahwaz, the biggest challenge will be its limited access to any advanced oil field development technology, primarily due to the US embargo that remains in force. In Iraq, any future oil production will be heavily dependent on the construction of oil gathering infrastructure to serve the numerous small field development projects. There will also be a need to deploy enhanced oil recovery (EOR)

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OIL PRODUCTION ESTIMATES

(million barrels a day)

	August 2005	Capacity Q3 2005	Spare capacity
Saudi Arabia	9.585	11	1.415
Iran	3.960	4.10	0.140
UAE	2.5	2.58	0.080
Kuwait	2.530	2.550	0.020
Iraq	1.97	2	0.030
Qatar	0.803	0.820	0.017

Source: Centre for Global Energy Studies

ALL HANDS TO THE PUMP: Gulf oil producers

MANPOWER

Wanted: new talent

From engineers to project managers, a new recruitment drive is badly needed across the region

Cement and steel prices have leapt by as much as 35 per cent in some Gulf states in the last three years, and contractors have been feeling the pinch. However, new capacity is gradually filtering through to the market, and profit margins of 7-10 per cent have helped take the sting out of short-term supply constraints. But there are longer-term capacity issues that face contractors and clients alike in the oil industry,

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esting heavily in new production

techniques and develop heavy crude reservoirs.

Heavy oil is of even greater significance in Saudi Arabia, with Aramco steaming ahead with plans to increase production capacity to 12.5 million b/d by 2009/10, from 11 million b/d at present. "Due to the distribution of reserves, Aramco will eventually increase production of heavier crudes to sustain its overall growth in capacity," said Al-Husseini. A similar strategy has already been adopted in neighbouring Kuwait. Early this summer, state-owned Kuwait Oil Company unveiled plans for a pilot scheme to develop heavy crude reserves. Called early production facilities, the scheme will have an initial capacity of 50,000 b/d. Similar projects are under consideration in other Gulf states. "In total, heavy and medium crudes make up more than 50 per cent of conventional reserves," Al-Husseini pointed out.

Whether dealing with light or heavy crude, Gulf oil producers are encountering other challenges, including the growing need for reinjection, which in turn leads to rising water cuts, and the need to replace existing surface production facilities and infrastructure. All these bottlenecks have resulted in major increases in capital expenditure. "Increased production will be a complex factor," said David O'Reilly, chief executive officer (CEO) of Chevron Corporation, at the conference. "We are at an unconventional stage."

EPC deficit

But all the issues facing oil companies are dwarfed by the challenges that have beset local, regional and engineering, procurement and construction (EPC) contractors in the last three years. "Lack of resources is a major stumbling block, be it unskilled or skilled manpower or construction materials," says a Gulf-based EPC contractor (see box). Availability constraints have meant an increase in construction material prices, which in turn have impacted final bid prices. "In the past three years, the cost of cement and steel has risen by an average of 35 per cent, primarily due to the large number of projects being awarded."

RIG COUNT

	2003	2004	August 2005
Saudi Arabia	32	32	37
Iran	35	41	38
UAE	16	16	16
Kuwait	5	5	9
Iraq	na	na	na
Qatar	8	9	12

na=not available *Source: Baker Hughes International*

There seems to be no let up in the scenario, as pressure grows on EPC contractors to take on further work. In the last two weeks of September, contracts worth a total of $7,000 million were awarded in Qatar, while EPC contractors are awaiting invitations to bid for the $11,000 million Khurais oil field development project in Saudi Arabia.

Concerns are also growing over Gulf producers' access to exploration and production equipment. In the past year, a major pinch point has been the availability of drilling rigs, forcing some producers to take a closer look at their future upstream development programme. "There has been no impact as yet, but in 18 months the scenario will change. We are bracing for a crisis," says an official at Qatar Petroleum in Doha.

The short-term prospects do not augur well. "By 2008, the demand for offshore drilling rigs will be 250 rig months, far above current supply," said Matthew Simmons, chairman of ➡

the most important of which is a shortage of labour.

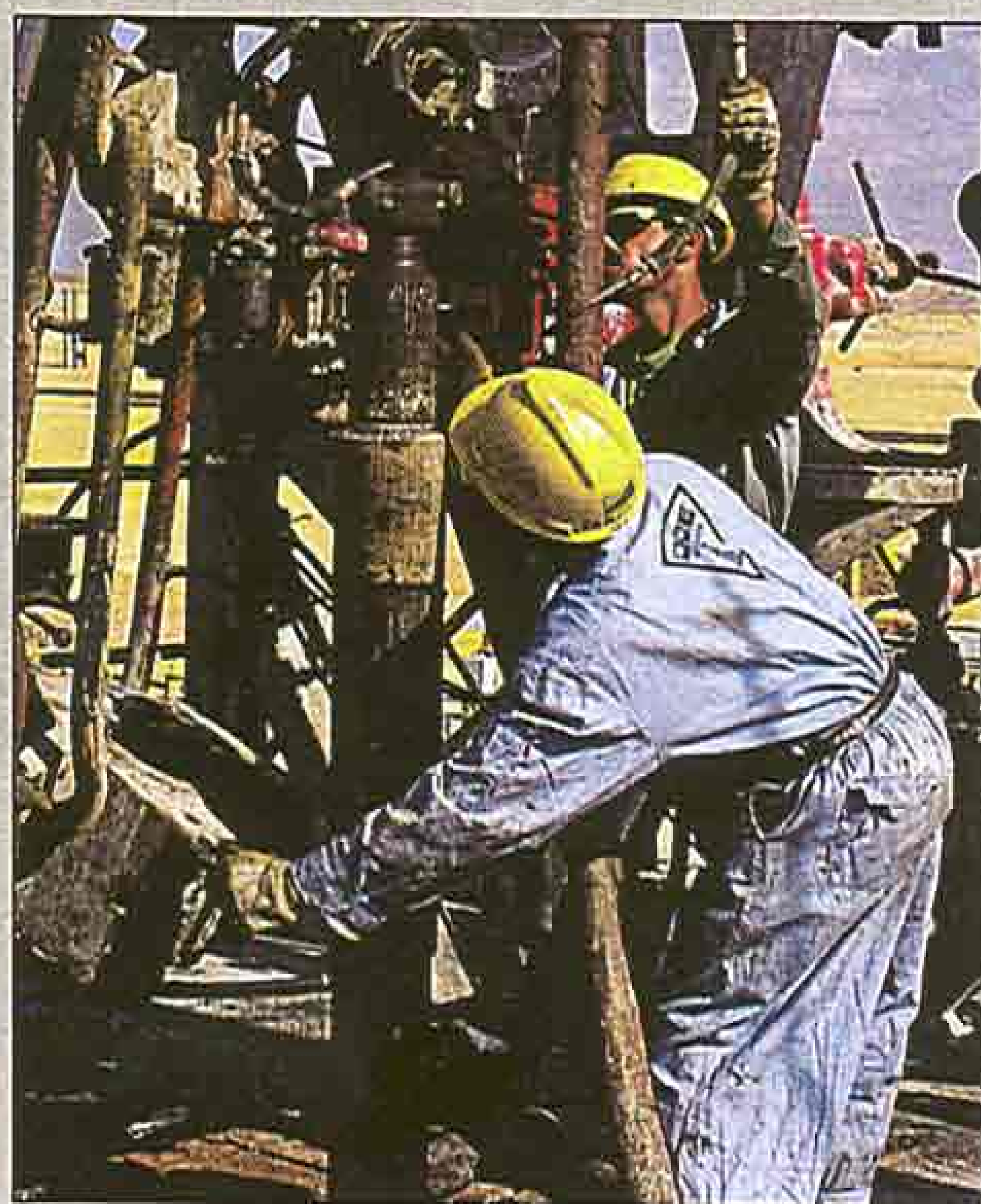
As the fourth HSBC-MEED Middle East Confidence Survey revealed in September, nearly 70 per cent of respondents pointed to a major shortage of unskilled labour in the GCC, while contractors expressed serious concerns about wage inflation among skilled workers. Project manager salaries for local hire in the UAE jumped by 9 per cent in June alone to $6,000 a month, while the monthly salaries demanded by site engineers of 10 years' experience has risen to as much as $4,500.

Ageing workforce

The problem is particularly acute for oil companies. During the low oil price environment of the late 1990s many international firms cut back on staff, while incentives for trainee engineers to enter the industry dried up. As a result, the pool of qualified engineers is ageing, with as many as 40 per cent of petroleum engineers expected to retire within the next decade. The average age of production engineers working in the Middle East is now 48, according to recent research by UAE-based Middle East Strategy Advisers (MESA), and while the number of graduates entering training schemes has increased in recent years, there is fierce competition for qualified engineers.

The national oil companies (NOCs) of the Gulf are at a particular disadvantage, according to MESA, as international employers such as BP, the Royal Dutch/Shell Group or Total have better reputations as employers.

"There is already competition in this sector for human resources between GCC countries, a trend which could become a major hurdle for the region's overall economic development," says MESA. "In addition, most GCC countries have set aggressive nationalisation targets to replace hiring expatriates with nationals. The national supply base of experienced engineers is limited so this requirement turns a difficult task into a major challenge for human resources departments."



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■ SHORTAGE: Trained workers are scarce