



SASOL

which, when it opens in 2008, will convert 6,400 tonnes a day of coal into oil products in its first year, with plans to increase that capacity over the following years.

Kennel says that the principles of coal liquefaction are well established, and that the emphasis is on refining the existing processes. "Today we're talking about making them cheaper, more efficient and more environmentally friendly," he says.

Capturing the market

This last point is really the elephant in the room for coal liquefaction. Because processing a tonne of coal produces much more CO₂ than a tonne of crude oil, the environmental case rests on the hazy prospect that the CO₂ can be 'captured' or sequestered. None of the pilots under construction will achieve that.

"The thing on everybody's mind is CO₂," admits Kennel. "The community is trying to figure out how to capture it." Clifford says that concerns about CO₂ emissions are preventing major commercial investment in coal liquefaction, and that public money is needed if new plants are to be built.

Sasol claims that the CO₂ from its plants is purer than that produced by coal-fired power stations, and it should therefore be easier to liquefy and sequester. But that will be easier said than done. And most people outside the coal industry are sceptical about the economic feasibility of coal liquefaction — even before the large and unknown costs of sequestration and storage are factored in.

High oil prices certainly make technologies such as coal liquefaction more viable, says Robert Wine, a spokesman for the oil company BP in London. "They are expensive projects," he says. "They can only compete either when oil prices are high, or when they can attract government support." ■

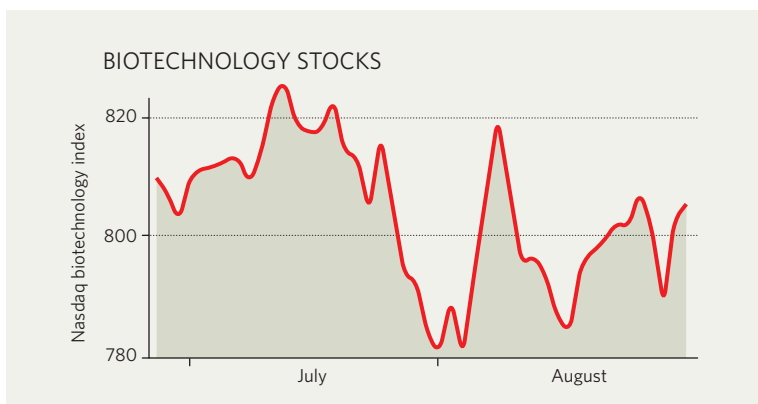
IN BRIEF

SECURE VENTURES Companies with interests in homeland security are becoming the hottest ticket for support from venture capital. London-based Venture Business Research says that security-related companies have attracted US\$4.5 billion in venture capital and private equity investment so far this year, up 34% on the same period in 2006. It adds that the sector is now vying with the clean-energy sector, which has attracted \$5.2 billion this year, as the most popular destination for venture capital worldwide.

ENERGIZED The British government has selected defence contractor QinetiQ in Hampshire, UK, to run a body that will coordinate research into energy flow in materials. The Ministry of Defence contract to the UK Energetics Consortium, as the new outfit is called, is expected to be worth £10 million (US\$20 million) over three years. The ministry says that it needs the consortium to help it garner knowledge about energetics from universities, companies and government laboratories.

BOEING BOOST NASA has awarded a US\$515-million contract to Boeing to build part of the rocket that will be the space agency's main astronaut launcher once the space shuttle is withdrawn from service in 2010. Boeing will build the upper stage of the Ares I rocket, which will carry astronauts to the International Space Station and, perhaps, to the Moon. Alliant Techsystems of Edina, Minnesota, has already won a larger contract to build the rocket's lower stage.

MARKET WATCH



This week, Wood Mackenzie, an Edinburgh-based research and consulting firm, reviews recent trends in biotechnology stocks.

The Nasdaq Biotechnology Index made no progress during July and August, and stands only marginally higher than it did at the start of the year. Broader market indices lost value during the period.

Bad news continued for California-based Amgen over this period. On 30 July, US reimbursement authorities issued a ruling that will reduce the use of erythropoietin for treating anaemia in patients with cancer in the Medicare and Medicaid programmes. That adds to the pressures building up on Amgen's flagship erythropoietin drug, Aranesp, which is embroiled in safety concerns and losing sales (see *Nature* **448**, 121; 2007).

Then on 15 August, Amgen announced a 14% reduction in its workforce — much of which is likely to be in its research-and-development staff. The

company's share price has continued to fall. Over the past two months it has dropped nearly 10%; its value is now at its lowest point for more than four years.

Amgen's misfortunes were offset by strong performances by other companies in the index. At the end of July, when reporting its second quarter results, Vertex of Cambridge, Massachusetts, announced good results from clinical trials of its experimental hepatitis C drug, telaprevir — widely viewed as a potential blockbuster. The company's share value climbed by around 35% over the period.

The stock of Onyx Pharmaceuticals in Emeryville, California, has also climbed steadily. In August, its marketing partner Bayer reported stronger-than-expected sales of its newly approved kidney-cancer drug Nexavar (sorafenib). The drug also achieved impressive clinical results for the treatment of liver cancer, potentially broadening its market. ■