

## Labour shortage threatens to delay many LNG projects

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MORE than \$US100 billion (\$108 billion) of liquefied natural gas projects in Australia, Papua New Guinea and the Timor Sea are planned over the next decade, but a severe labour shortage and surging costs mean many projects will not go to schedule, keeping global supply tight.

There are plans for 17 new projects and if all go ahead, LNG output from the region will surge sevenfold within 10 years to 117 million tonnes a year — the energy equivalent of 2.85 million barrels a day of oil or a third of Saudi Arabia's 2007 oil output.

But there's scant chance of this due to surging material costs and a boom-driven labour scarcity in Western Australia. Last week BHP Billiton Petroleum chief executive Michael Yeager said the problem was the worst in the world, aside from Alberta's oil sand fields.

Instead, the region's output might fall well short of half its potential. The rush to produce more LNG — natural gas cooled to liquid state so it can be moved in tankers — comes as global demand for the fuel is about to surge threefold to more than 500 million tonnes a year by 2030, according to Exxon Mobil forecasts.

As well as growth in global energy use, demand is being boosted by the attraction of fuels that emit less greenhouse gas than coal and oil.

"Australia should play a key role in meeting supply, but at the moment the industry is failing to meet the call," says Mark Greenwood, a Sydney-based energy analyst with JPMorgan.

"There's more projects than there are people to build them and that's the main reason why we don't see them all getting up," he says, adding that some company boards are also baulking at the huge capital costs needed.

"Given those constraints, it looks like LNG prices are going to remain firm for a very long time," he says.

Asian LNG spot prices are around \$US15 per million British thermal units, a far cry from the \$US3/MMBtu locked in earlier this decade by Chinese custom-

ers of Australia's first LNG project, the North West Shelf.

Asian demand is also influencing US spot prices, which rose 45 per cent to \$US8.29/MMBtu in January, from \$US5.71/MMBtu in October, according to the US Energy Department.

The Australian Petroleum Production and Exploration Association, an oil and gas lobby group, has laid down what it calls an "aspirational" target of tripling the country's LNG output to 50-60 million tonnes a year by 2017. Resources and Energy Minister Martin Ferguson says Australia could be exporting 60 million tonnes a year by 2015.

Even though these targets don't cover all planned projects, they were shot down last week by Woodside Petroleum, Australia's biggest independent oil and gas producer and the operator of four planned projects.

"I don't think it is physically possible to build all that stuff," Woodside chief executive Don Voelte says, citing labour and equipment constraints.

"It is my considered opinion that (tripling of Australian LNG output) is not an aspiration, it is not even a dream — it is impossible," he says, adding that doubling is more likely in that time frame.

Australia produced 15.1 million tonnes of LNG from just two projects in 2007: the Woodside-operated North West Shelf venture off the northwestern coast of Western Australia; and ConocoPhillips' Darwin LNG plant, which processes gas from the Timor Sea.

A North West Shelf train five expansion is due to add 4.4 million tonnes a year to this in the first quarter of 2008.

Given that the projects off the coast of Western Australia which Woodside is involved in will more than double Australia's current output, Voelte's expectations leave little room for others.

Along with the Shelf's train five, Woodside is now building the only other board-approved LNG facility in Australia: the \$12 billion Pluto project next door on the Burrup Peninsula.

The first processing unit, or train, of this is expected to add

4.3 million tonnes a year of LNG from 2010.

Perth-based Woodside is also planning to add about 15 million tonnes a year of production from the massive Browse project, offshore from Western Australia, which analysts expect to cost more than \$20 billion, and another 5 million tonnes a year from the Sunrise project in the Timor Sea.

Both await final design decisions and board approval.

JPMorgan's Greenwood says he agrees with Voelte that doubling rather than tripling LNG output is more likely. But he says it won't necessarily be all the Woodside projects that get up.

Chevron is expected to provide serious competition for resources as it looks to develop its 15 million tonnes a year Greater Gorgon project and its smaller Wheatstone project.

Both are off Western Australia.

Gorgon is the biggest of the planned LNG projects, and one of the best examples of the hurdles being faced, with its owners having been discussing the best route to development since it was discovered in 1981.

If it goes ahead, there will be further expansion on the cards and it will be Australia's most expensive development.

Estimated start dates for Gorgon were pushed back from 2000, and the most recent official cost estimate, from 2005, stands at \$11 billion.

Chevron has stopped giving public cost and start-up date estimates, but analysts say the complex development, which involves the world's biggest carbon dioxide geosequestration project, will cost over \$US25 billion and not start until at least 2015.

Most of the region's new projects, including Gorgon, train five, Pluto, Wheatstone and Browse, plan to use gas from the Carnarvon or Browse Basins, both off the northwestern coast of Western Australia.

In the Browse Basin, where so far there has been little development, state and federal governments are proposing restricting LNG plant developments to a central hub, which has worried

some producers given a lack of detail on who would operate it.

The talk has led Inpex Holdings to push back the start date on its 8 million tonnes a year Ichthys project to 2013 and to consider processing the gas in Darwin, 900km away.

Meanwhile, on the other side of Australia, near the port town of Gladstone in Queensland, a new LNG region has sprouted in

the last two years.

Removed from the severe shortages in Western Australia, it may have a better chance of making good on planned production.

There are now four separate proposals to produce LNG from onshore coal seam gas in the area, including a \$7.7 billion plan from Santos which is expected to produce 3-4 million tonnes a

year.

BG Group and Queensland Gas are planning a similar-sized venture, and two smaller projects, of around 1 million tonnes a year, are planned.

Also a fair way from the tight Western Australian construction market, Exxon's \$US11 billion LNG project in Papua New Guinea also has a strong chance of going ahead on schedule.



**More please:** The rush to produce more LNG comes as global demand is about to surge