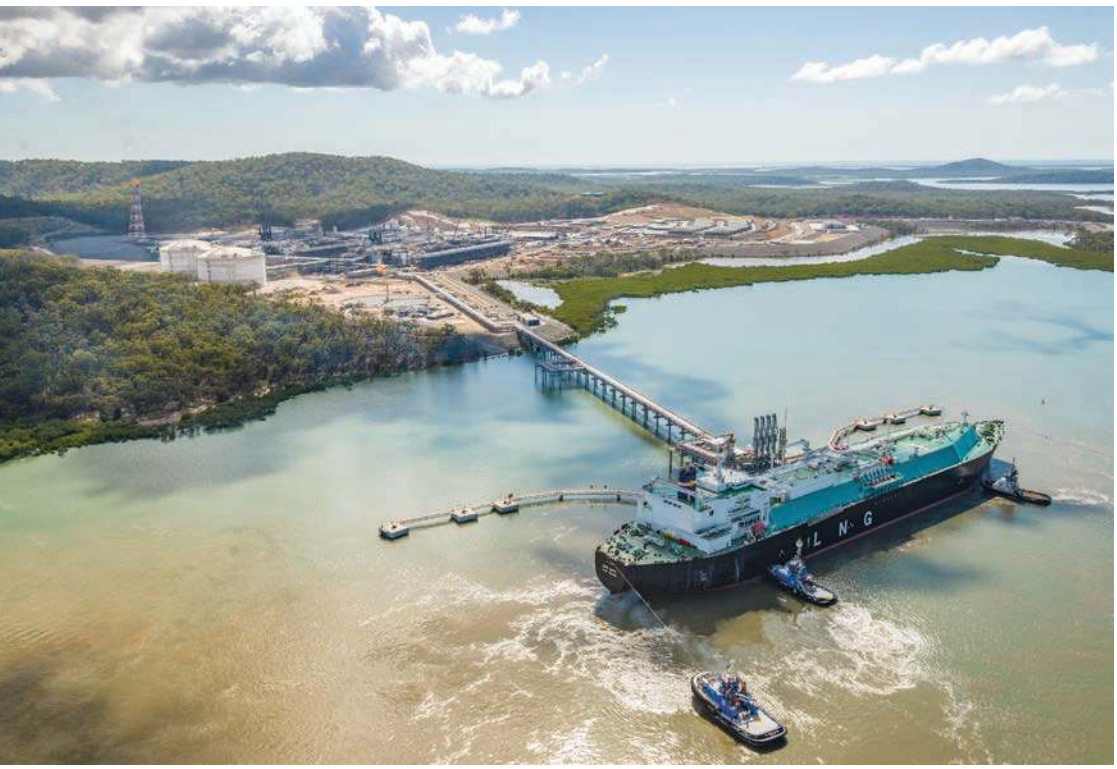
GAS

Stepping on the gas



The first LNG ship, the Seri Bakti, to dock at the Santos GLNG site on Curtis Island, Gladstone, arrived on 28 September 2015

Source: Santos

Nic Newman looks at how Australia's LNG sector is restructuring its business model to cope with changing market conditions.

Australia and the US have accounted for 75% of the 260tn cf gain in proven gas reserves since 2005, according to BP figures. A decade-long investment boom in gas exploration and development, coupled with investments in LNG export processing facilities, have turned Australia into a significant exporter. And there is more to come – according to the International Energy Agency's *2016 Medium term gas market report*. Australia could add another six new LNG export terminals by 2020, tripling its liquefaction capacity to over 13bn cf/d. By 2021 Australia will rival, if not overtake, Qatar for the position of the world's largest LNG exporter, whilst the US could be exporting as much as 10bn cf/d.

LNG exports

Australia's LNG plants will add another 15mn tonnes to world markets in 2016 alone. Over the last decade more than A$172bn ($132bn) has been invested in LNG export plants located offshore on the North West Shelf and on the eastern coast of Australia. Nearly half of this amount (A$80bn) was invested by Chevron in the Gorgon and Wheatstone LNG export projects on the North West Shelf. Gorgon LNG dispatched its first cargo to Japan's Chubu Electric Power in March 2016. Once fully commissioned, the project will have a total production capacity of about 2.6bn cf/d of natural gas and 20,000b/d of condensate. Three other offshore projects currently under development – Prelude, Wheatstone and Ichthys, with a combined capacity of 2.8bn cf/d – are expected to come onstream in 2018.

Meanwhile, on the eastern coast of Australia, three major LNG plants – Queensland Curtis, Gladstone and Australia Pacific – are at various stages of completion. Two trains from Queensland Curtis and one train from Gladstone were commissioned in 2015. In June 2016, Australia Pacific LNG dispatched its first cargo to Japan's Kansai Electric Power Company. All three LNG plants are designed to process coalbed methane (CBM) into liquid natural gas for export. They have a current combined capacity of around 2.3bn cf/d, which should reach 3.4bn cf/d once fully completed in 2018.

Over 90% of gas from Australian LNG plants is forward-sold on long-term contracts to Asian markets, most notably Japan, China, India, South Korea and Taiwan, according to an Oxford Institute for Energy Studies (OIES) 2014 study entitled *The future of Australian LNG exports*. Japan and China, currently Australia's main markets, have contracted for 79% and 15% respectively of current Australian LNG exports, but for only 35% and 23% respectively of new LNG plant supplies, according to the EIA. As a result, export plants coming onstream in the future will have to look for new customers, possibly in competition with new US suppliers.

Market issues

According to Graeme Bethune, Chief Executive Officer, EnergyQuest, Australia's LNG plants are comparatively unscathed by the current supply glut. They are 'competing fine so far (only one US cargo has been shipped so far to north Asia) [with output] largely contracted to major credit-worthy buyers, while no project from east Africa has reached FID [final investment decision],' he says. Nevertheless, the strains are beginning to show with 40% fall in LNG spot market prices in spring 2016. Indeed, the entire east coast onshore gas export industry of Australia may currently be running at a loss, suggest some industry insiders.

In Western Australia, the A$40bn Browse LNG project has been cancelled, due to low LNG prices and insufficient interest from potential customers willing to sign long-term contracts.

The high cost of LNG export plants, especially those located offshore, has not helped. A 2013 McKinsey study identified cost

overruns of 20% to 30% as a major Australian problem. For example, the Gorgon LNG plant is now A$17bn over budget. At the time the FID was announced in 2009 no one had foreseen the prospect, let alone the scale, of US LNG exports onto world markets.

Investors and operators in new and planned LNG export plants are vulnerable to being caught between falling LNG prices, high and escalating costs of bringing their projects to fruition, lower than expected demand and competition from new supply. A case in point is the delay of the A$34bn offshore Ichthys LNG plant near Darwin, a joint venture between American, Japanese and Australian companies, following contract disagreements.

According to the IEA, liquefaction capacity will increase by 45% between 2015 and 2021, of which Australia and the US will account for 90% of new LNG exports. The current mismatch between demand and supply will, therefore, be exacerbated by this large wave of new supplies expected in the next five years and by the slowing down of demand from China and a decline from Japan as it returns to nuclear power. In conditions of a supply glut, new customers, unlike their predecessors, may be reluctant to lock themselves into long- term contracts at a specified price, thus creating additional uncertainty for forthcoming new supplies.

Closer to home

Meanwhile, Australia's domestic gas customers are at the receiving end of uncompetitive market structures, inadequate regulation and lack of transparency. A key issue arises from the lack of competition amongst upstream gas suppliers and gas pipeline companies. The East Coast, the biggest market in Australia, consumes some 700 petajoules (PJ) of gas annually, according to the *Financial Review* in September 2016, and is largely supplied by one pipeline company, the APA.

According to EnergyQuest's Bethune: 'There is currently a lack of competition in east coast upstream supply for domestic industrial buyers', which may explain complaints of price gouging. It is also a sign of weak regulation, which has allowed the country's dominant gas suppliers and pipeline operators to force up gas prices. Indeed, Australians are paying more for their gas than customers in Japan are. In July, the Japanese Ministry of Economy, Trade and Industry reported spot market prices in Tokyo of $8.42/GJ, whereas the Adelaide spot price was $13.90/GJ, reported *Renew economy* in September 2016. Meanwhile, according to a report by Credit Suisse Bank, the APA Group's pipelines are 'over-earning' by between 30% and 80% against the theoretical regulated revenue level reports. 'Few of APA's assets are subject to significant regulatory oversight, despite the fact that very little pipe-on-pipe competition exists and that high greenfield capital costs and low brownfield costs effectively entrench it as the monopoly provider in most cases,' commented Credit Suisse analyst Peter Wilson in a research note.

Regulations not fit-for-purpose

Currently, Australia's 20,000 miles of gas pipeline networks are largely unregulated since access terms and pricing were determined in long-term contracts made between the pipeline operator and gas producer. Three quarters of Australia's gas pipeline network is owned by one company, APA Group, which has acknowledged that only about 10% of its A$2.1bn pipeline revenues are subject to regulation. Under current law, for a pipeline to be regulated, it must be proved that access is required to promote a material increase in competition in the upstream or downstream markets. It does not matter at all whether monopolistic price gouging exists. Unsurprisingly, downstream gas retailers such as Santos, Origin Energy and AGL have not mounted a legal challenge, since on these terms they have been unlikely to win.

However, ACCC Chairman Rod Sims has taken up this issue. He said in September 2016: 'A new test is needed to consider three issues – whether a pipeline has substantial market power, whether that market power is likely to continue, and whether regulation will promote economic efficiency.' Whilst his views have political support, it may take at least five years before any new legislation is fully implemented. As Bethune observes: 'This seems to assume that there should be some domestic gas reservation policy which has been firmly rejected by a number of federal government inquiries.'

Domestic gas shortages?

Gas-rich Australia's domestic market customers face prospective shortages in supply as domestic supplies are diverted to LNG export projects, while existing and prospective low gas prices reduce the incentive and ability of producers on the east coast to explore and develop new gas resources. For example, gas from traditional sources of domestic supply including output from the Cooper Basin in South Australia is being diverted to Gladstone LNG facilities, whilst Origin Energy has cancelled plans to develop 800 PJ of coal seam gas, enough to supply New South Wales for eight years. Meanwhile, the upstream gas industry has been hit by a moratorium on onshore gas exploration and development, and there are other regulatory restrictions in New South Wales, Victoria and Tasmania, and potentially the Northern Territory, according to ABC reports in April 2016.

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As a result, the main source of gas for South Eastern Australia lies offshore in the Bass Strait, between Victoria and Tasmania. The Northern Territories state government has promoted one solution to the expected gas shortages facing eastern markets, also arguing that this would improve energy security and competition. It proposes using gas from the soon to be opened Ichthys LNG project located in the Browse Basin in Western Australia for delivery to eastern Australian markets. It envisages using a mix of existing, planned and proposed pipelines. At present Ichthys LNG is being linked to Darwin by a 900-km subsea gas export pipeline to an LNG export terminal in Darwin. Instead of exporting the gas overseas, the government proposes to send gas south to Tennent Creek near Alice Springs, from there it intends building a new A$1.3bn, 1,000-km pipeline that would join the Eastern pipeline network at Mount Isa in Queensland. At Mount Isa, the gas would be distributed to east coast markets. Industry insiders also suggest that such a pipeline project could double the amount of onshore gas reserves that could be fracked in the Northern Territories to around 40tn cf.

Looking ahead

Market prospects would seem problematic for Australia's new LNG export plants given foreseeable persistent oversupply, possible further price falls and competition from the US. However, new customers in South Africa, India and the Middle East should represent an opportunity. As for the domestic market, the threat and, indeed, the actuality of gas shortages will have to be resolved. ●