

2007: The year in LNG

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LNG projects pushed ahead in Australia and PNG as Asian buyers returned to the market.

Shake-up for PNG gas sector

In February, Oil Search announced that it had finally abandoned its troubled \$8 billion PNG-Queensland gas pipeline project and its big-ticket project was now an LNG scheme.

Stating the obvious, Oil Search said the costs and returns from the pipeline were unattractive when compared to LNG.

The company is now focusing on an ExxonMobil-led LNG development that would draw on the Hides gas fields. Oil Search said its Kutubu fields could also be linked with the Hides LNG project or used for petrochemical projects rather than LNG.

Australia's Santos, long seen by some backers of the PNG pipeline as being obstructive, said in April it had joined the ExxonMobil-led PNG LNG consortium, agreeing to help fund a detailed pre-front-end engineering design study.

The study is evaluating the technical and commercial merits of developing a 6.3 million tonne per annum LNG facility with first deliveries targeted for 2013.

The ExxonMobil project is in a race with a Liquefied Niugini Gas scheme announced in 2006 that is aiming for first gas by 2012.

Liquefied Niugini is backed by Canadian explorer and refiner InterOil and US finance giant Merrill Lynch. It aims to draw gas from the Elk and Antelope fields in eastern PNG and to build a liquefaction plant near Port Moresby with two trains, each of 4.5MMtpa capacity.

As well as these two big projects, PNG could have a third, smaller, LNG scheme up and running in the next few years.

LNG technology company Liquefied Natural Gas Limited wants to set up a 1.3MMtpa development in the Gulf of Papua drawing on gas from the Foreland region.

The project would be a gas-gathering system drawing on various fields in south-central and southwest PNG.

Santos puts focus on CSM to LNG

In early 2007, one of the partners in the ExxonMobil PNG LNG project, Santos, said it was aiming to be producing at least half its revenue from LNG by 2020.

As the year progressed, it became clear that Santos intends that this LNG would not only come from its stakes in the PNG LNG scheme and an expanded Darwin LNG project, but also from a new sector altogether – coal seam methane-fed LNG.

In July, Santos revealed it was planning to build a 3-4 million tonne per annum LNG plant at Gladstone, Queensland to process and sell its CSM into export markets. Santos estimated its \$5-7 billion project, would produce \$1 billion per year in exports.

This followed a similar announcement by Arrow Energy in May that it has agreed to supply CSM into a smaller 1 million tonne facility, also proposed for Gladstone. Then at the end of the year, Sunshine Gas announced it had signed a heads of agreement with Japan's Sojitz Corporation to jointly develop a 500,000 tonne per year Gladstone LNG plant using gas from Sunshine's Lacerta CSM project.

There is plenty of scepticism surrounding these proposals, but Santos points out that ConocoPhillips has been selling LNG for decades from Kenai, Alaska derived from gas that has a very similar composition to CSM.

Arnie terminates Cabrillo, OceanWay still afloat but adrift

Meanwhile across the Pacific, California Governor Arnold Schwarzenegger vetoed Cabrillo Port, an LNG terminal planned BHP Billiton that would have been one of Australia's most lucrative export deals, saying that the facility was not environmentally sound.

BHP had planned to ship the LNG in supertankers from gas fields off the west coast of Australia to build a 14-storey, 295m long LNG terminal 22.25km off the coast of Malibu and then pipe it to the California mainland.

Malibu residents and other lobbyists argued that the project was a polluter, an eyesore, and a target for terrorists.

A rival Australian LNG import scheme, Woodside Petroleum's OceanWay proposal, is still awaiting approval by Californian authorities.

OceanWay is intended to use delivery buoys more than 32km offshore from Los Angeles International Airport with dual undersea pipelines to deliver natural gas to shore. Two similar developments have been approved in Massachusetts, but the Californian approvals process is proving to be tortuous and politicised.



Pluto well test

Asian interest in LNG surges

However, Woodside and other Australian LNG players aren't pinning their hopes on the US market.

The Chinese are buying LNG again – at market prices.

In early September, PetroChina signed two Australian LNG deals – a binding heads of agreement with Shell for 1 million tonnes per annum of Gorgon LNG over 20 years, and a key terms agreement with Woodside for 2-3MMtpa of Browse LNG over 15-20 years. This second deal was hailed as Australia's most valuable-ever single resources contract.

Then in November, Woodside signed a key terms agreement with CPC Corporation Taiwan for the potential sale of 2-3 million tonnes per annum of LNG from the Browse LNG project for 15-20 years. Production at Browse is due to start between 2013 and 2015.

The deal is subject to conditions including a final investment decision and the receipt of relevant government approvals.

As well as Taiwan, Woodside may have found a potential Browse LNG customer in South Korea, if international news reports are correct. Reuters quoted South Korea's energy ministry as saying that state-run Korea Gas Corp and major refiner GS Caltex were seeking LNG supplies from Woodside's Browse and Chevron's Gorgon projects.

Rocket to Pluto

Given the interest from Asian LNG buyers, Woodside had no hesitation in making a positive final investment decision on its Pluto project.

However, the company said, but said the project was now expected to cost \$A12 billion, up from previous estimates of \$6-10 billion.

Pluto's first processing train will produce about 4.3 trillion cubic feet of gas per year, connected to the offshore Pluto and Xena gas fields by a 180km undersea pipeline.

Pluto is one of only two global liquefied natural gas projects that have been approved in the past two years. Discovered in April 2005, the Pluto gas field could be the fastest development of a LNG project ever seen, with first gas planned for 2010.

Construction has already begun at the Burrup Peninsula site.

What's next in the LNG queue?

Pluto looks certain to be the next Australian LNG project to be built, but the future of various other Western Australian schemes seems unclear.

Chevron's \$21 billion Gorgon project has received state and federal environmental approvals (with strings attached) but a final investment decision has not yet been made.

Other projects proposed for WA include the Inpex-operated Ichthys development, and two more Woodside-operated schemes – Browse LNG and Pluto Train 2.

BHP Billiton said nothing in 2007 about its proposed 6MMtpa Pilbara LNG field, which is intended to draw on the Scarborough field. Partner ExxonMobil has a string of other LNG options (with PNG LNG at the head of the queue) and is thought to be unenthusiastic about developing Scarborough, which is in deep water and far offshore.

But BHP's major gas discovery at Thebe, not far north of Scarborough, could provide a critical mass to make development of this field economic. Even so, any development is likely to be years away.

The same can be said of LNG-driven exploration in which ConocoPhillips has teamed up with junior Karoon Gas to explore the Browse and Shell has joined with Nexus Energy to appraise the Echuca Shoals region.

However, Shell's discovery at the Prelude-1 well in the company's 100%-held WA-371-P permit may well be the start of something big, not least because it could be an extension of the giant Ichthys gas field in the neighbouring WA-285-P permit.

Ichthys' 12 trillion cubic feet of gas has been earmarked for a 6 million tonnes per annum LNG development by partners Inpex and Total. Unitisation talks between these players and Shell could well slow down Ichthys, but accelerate Shell's plans for Browse Basin LNG

Meanwhile in the Northern Territory, Conoco and Santos are continuing to assess seismic in gas-prospective Timor Sea acreage in the hope of finding a resource to underpin a second Darwin LNG train.

Also in the Timor Sea, LNG dark horse MEO Australia is currently appraising the Heron gas field.

If this turns out to have a resource capable of underpinning the company's planned 3MMtpa project, MEO will be a bolter.

The company already has approvals in place for an LNG project to be sited on an artificial concrete gravity structure near Tassie Shoal 300km north of Darwin. It also has a 50:50 partnership in the proposed facility with LNG technology giant Air Products.

And the 8Tcf Greater Sunrise fields, which lie between Darwin and East Timor, are back on the menu.

In November, Woodside chief executive Don Voelte said the company had set up a representative office in Dili, East Timor, and had restaffed the Greater Sunrise project.

The Sunrise partners are considering three possible sites for liquefaction – Darwin, East Timor and a floating LNG plant.

Voelte said the floating plant appeared to be the cheapest option and could sidestep the political difficulties of processing the gas in either Australia or East Timor.

Putting a gas liquefaction plant on a floating platform isn't a new idea, but it has never yet been achieved.

Floating LNG was one of the original development options when Shell was investigating the project, but was rejected on cost and technical grounds. However, Voelte said studies had since overcome many of the problems previously identified.

Shell has reportedly been researching the subject and is considering a floating LNG plant for its extensive Browse acreage.

BHP and ExxonMobil are also thought to be pondering floating LNG for Scarborough.

After draining one field, floating LNG plants could be redeployed to another and would have the potential to make viable the exploitation of gas fields considered too small or too distant for major LNG projects.

But the concept could be put first to the test in fields too small to interest the likes of Woodside, ConocoPhillips and Shell.

Remember junior LNG developer Liquefied Natural Gas Limited and its proposed 1.3MMtpa Gulf of Papua LNG project? One of the options being considered is a floating LNG plant.