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## Australasia's Gas Liquefaction Plans

The Australian LNG business appears to be on the cusp of a big expansion. Over the past few months, several new gas liquefaction projects have been announced, including ones in the traditional North and North West Shelf basins, in the relatively new Queensland coal-bed methane (CBM) province of Eastern Australia, and in Papua New Guinea. Plans are also afoot for an LNG import terminal in New Zealand.

These projects are driven by three factors: tight mid-term supply in the global LNG market; the willingness of buyers to agree to long-term price indexation close to parity with oil; and the attraction of Australasia's political stability (compared to other gas-rich provinces) for international oil companies.

### Plenty of Enthusiasm, but a Slow Pace

Table 1 identifies gas liquefaction projects under development and in planning in Australia, Papua New Guinea, and Indonesia's marine waters adjacent to Australia's border. The total potential capacity, some 90 million tons (Mt) per year, is impressive, considering the current operational global capacity of some 175 Mt per year. Even if this additional capacity takes a decade or more to deliver, it should have an impact on the tight mid-term global LNG market, with its growing gap between surging demand and limited supply.

**Table 1. Australasia's gas liquefaction projects**

Project name	Operator	Capacity (mtpa)	Basin location	Start-up year
Northwest Shelf (NWS 5)	Woodside	2.4	Carnarvon	2008
Pluto Phase 1	Woodside	4.3	Carnarvon	2010
Fisherman's Landing	LNG Ltd.	1.3	Gladstone (CBM)	2011
Pluto Phase 2	Woodside	4.3	Carnarvon	2012
Sunshine	Sojitz (Japan)	0.5	Gladstone (CBM)	2012
Gladstone	Santos	3-4	Gladstone (CBM)	2013
Onshore (Surat CSM)	BG Group	3-4	Gladstone (CBM)	2013
Wheatstone	Chevron	5.0	Carnarvon	2013
Ichthys	Inpex	8.0	Browse	2013
Sunrise	Woodside	5.0	Timor Sea	2013
PNG LNG	ExxonMobil	6.3	Papua New Guinea	2014
Browse	Woodside	15.0	Browse	2015
Abadi (Indonesia)	Inpex	3-5	Timor Sea	2016
Gorgon	Chevron	15.0	Carnarvon	2015
Darwin Phase 2	ConocoPhillips	5-6	Timor Sea	2015+
Scarborough	ExxonMobil	6.0	Carnarvon	2017+
Prelude	Shell	3.5	Browse	2013+

Recently China and India have been seen as the major long-term customers for Australia's new LNG capacity, beginning in 2002 when North West Shelf Australian LNG agreed to a 25-year supply deal with China. It called for delivery of 3.3 Mt per year to Dapeng for about \$3 per

MMbtu, with limited escalation clauses. (North West Shelf Australian LNG is a venture with six equal owners: BHP Billiton, BP, Chevron, Japan Australia LNG, Shell, and Woodside Energy.)

In April 2008, North West Shelf Australian took delivery at Hudong-Zhonghua shipyard (Shanghai) of the Dapeng Sun, the first of three Chinese-built LNG carriers destined to transport its LNG to the Dapeng receiving terminal. Many of the Australia liquefaction projects are seeking new Chinese contracts, as well as with other East Asian buyers, but at substantially better prices than the initial deal.

### **Short-term Action vs. Mid-term Plans**

The Australian Petroleum Production and Exploration Association and Australia's Resources Ministry are promoting the idea that, by 2015, Australia should be exporting some 60 Mt per year of LNG, five times more than current capacity. Aside from the \$100 billion (or more) of investment this would require, many doubt there is sufficient skilled manpower to achieve this.

The next project due onstream later this year is North West Shelf Australia's train 5, with a capacity of 4.4 Mt per year. This will bring Australia's total gas liquefaction capacity to 16.3 Mt per year. In 2010, Woodside expects to finish the Pluto project, with 4.3 Mt per year capacity. The Pluto offshore platform will export 1.6 billion cubic feet per day of gas, via a 36-inch subsea pipeline to an onshore single-train liquefaction plant.

Despite the large number of projects in planning, the construction schedule for the remaining projects is less certain. Indeed, some projects have for so long been touted as imminent (e.g., Gorgon, Sunrise, and Browse) that the Australian government and industry analysts have expressed doubts about the commitment to develop them. There are plenty of issues that must be resolved, including the remoteness of the gas fields (distance to shore), environmental and community objections (e.g., Gorgon, Ichthys), challenges (CO<sub>2</sub> sequestration requirements), escalating costs, partner wrangles over development options, border disputes (e.g., Sunrise), and uncertainty about floating gas liquefaction technology (Scarborough).

The inability of LNG plant owners to secure long-term LNG sales agreements at favorable prices, the most frequent cause for large remote gas reserves languishing underdeveloped for years, is no longer a reason for delays. Sustained high Asian gas prices, and a spate of recent deals with East Asian buyers involving LNG prices close to parity with oil prices, have even led to plans for several CBM-supplied projects feeding liquefaction facilities at Gladstone, Queensland. The CBM projects have prompted intense industry interest and competition.