



WA DOMESTIC GAS MARKET OUTLOOK: 2013 – 2020

February 2013

KEY POINTS

- Western Australia currently consumes around 1000 terajoules per day (TJ/d) of domestic gas.
- Of this, around 570 TJ/d or 57% is supplied by the North West Shelf Project with the remainder supplied by Apache-led joint ventures and the Perth Basin.
- Supply from the NWS Project is expected to fall sharply before ending in 2020 when the last long term domestic supply contract expires. The NWS Project partners have shown limited interest in renewing existing contracts or entering into new contracts.
- The State will need 760 TJ/d in new domestic supply by 2020 to replace the NWS Project and to meet annual consumption growth of 2.5% per annum.
- Additional supply would also be needed for major new project developments such as in the Pilbara and Mid-West.
- Four new domestic gas projects are currently in completion or under construction.
- More than half of the new domestic gas processing capacity under construction is the direct result of domestic gas reservation - Gorgon (300 TJ/d) and Wheatstone (200 TJ/d). Without reservation, it is likely that neither of these projects would supply the domestic market.
- The reservation policy has not discouraged new domestic gas only projects – like Devil Creek or Macedon.
- Domestic gas processing capacity is simply that and should not be equated to or deemed to be actual supply outcomes or the timing of any such supply.

- Given cross-ownership and concentration in supply, gas-on-gas competition from new projects is likely to be limited. This will limit any downward pressure on prices and necessitates the end of joint selling in 2015 when existing ACCC authorisations expire.

BACKGROUND

1. North West Shelf Project – expected fall-off in supply

Western Australia consumes around 1000 terajoules per day (TJ/d) of domestic gas.

Most of this gas is currently supplied by the North West Shelf Project. The Project includes two domestic gas trains with a total capacity of 12 million tonnes per day or 700 TJ/d. During the Varanus Island explosion, supply peaked at 700 TJ/d as the Project increased production to compensate for the loss of supply.

In 2011, the average output of the NWS Project was reported as 575 TJ/d.¹ Most if not all of this was in the form of long term contracts to a small number of customers. These contracts will expire over the next 7 years with the last contract ending in 2020.

To date, the NWS Project has shown limited interest in entering new contracts with new customers or in renewing existing long term contracts.

Table 1 provides an estimate of current NWS Project volumes and existing contract expiry dates. The information was sourced from a 2004 Report prepared for the State Government by Sleeman-GBRM together with more recent information.²

By way of comparison, the total estimate of 570 TJ/d is very close to the 575 TJ/d reported by Woodside Energy for 2011. Note that the table includes some contracts expiring or have expired in 2012 and 2013.

The BHP Billiton contract, expiring in 2013, is expected to be filled by Macedon. Supply from the NWS Project would then fall to around 460 TJ/d and 65% of processing capacity (or 370 TJ/d and 52% if Purchaser B's 2012 expiring contract volume is excluded).

Purchaser D currently uses around 135 TJ/d of gas from the NWS Project. Under its existing contract, the contract will end upon delivery of 700 PJ of gas or in 2020, whichever occurs first. It is projected that the 700 PJ volume limit could be reached in 2017.

¹ IMOWA, *2012 Statement of Opportunities*, p.69, citing Woodside financial reports.

² Sleeman Consulting and GBRM, *Energy for Minerals Development in the South West Coast Region of Western Australia*, December 2004, p.141.

This would result in a further fall-off in NWS Project domestic supply to 325 TJ/d and 46% of processing capacity (or 235 TJ/d and 33% if Purchaser B's 2012 expiring contract is excluded).

Table 1: North West Shelf – long term contracts

Purchaser	Contract Expiry	Estimated Quantity TJ/d
A	2020	175
B	2012 and 2020	90 and 60
BHP Billiton	2013	110
D	700 PJ or 2020	135
TOTAL		570

2. Other domestic gas supply contracts

The 2011 Parliamentary Inquiry Report into Domestic Gas Prices provided a breakdown of effective gas processing infrastructure (and supply) as current in 2011.

Table 2: 2011 effective gas processing infrastructure

Project	TJ/d
NWS domestic gas	600
Varanus Island	390
Perth Basin	35
TOTAL CURRENT	1025

While the NWS Project is the State's largest supplier, Apache-led joint ventures account for the bulk of the remaining domestic supply market. **Table 3** compiles information sourced from the public domain on other supply contracts. It may not capture every supply contract currently in force.

Table 3: Other long term contracts

Date of contract / announcement	Gas Field	Producer	Buyer	Notes	Expiry Date
2011 Nov	Reindeer	Santos	Minara Resources	14.8 PJ over six years commencing 2013	2019
2010 Apr	John Brookes	Santos	Wesfarmers Energy	Up to 60 PJ over more than 5 years commencing 2H 2010	2015
2009 Jan	Reindeer	Santos	CITIC Pacific	75 PJ over 7 years commencing 2011. Price fixed for first 3 years with periodic adjustments indexed to CPI. From fourth year, price indexed to international oil prices.	2018
2008 Oct	John Brookes	Santos	Moly Metals	33 PJ over 6 years commencing mid-2010; "The gas price achieved in the contract is linked to international traded crude oil. The revenue is denominated in US dollars. Assuming a future oil price of US\$90 per barrel, the expected revenue derived from the contract will be approximately US\$380 million." Santos ASX announcement	2016
2007 Oct	Harriet	Tap Oil	Undisclosed	\$96 million revenues from late 2013 to early 2017	2017
Oct	Harriet	Tap Oil	Undisclosed	\$135 million revenues from 1 July 2008 to 31 Oct 2013	Oct 2013
Jul	John Brookes	Santos	Barrick Gold	7.3 PJ under a five year contract. Expected revenue approx \$55 million. First delivery 1 July 2008	Jul 2013
Jul	John Brookes	Santos	Jabiru Metals	1.7 PJ under a five year contract. Expected revenue approx \$8 million. First delivery mid 2008	Mid 2013

2005 Sept	John Brookes	Santos	NewGen	229 PJ over 15 years for Kwinana power station	> 2020
	John Brookes	Santos	EDL LNG (WA) Pty Ltd	58 PJ over 20 years for West Kimberly Power project	> 2020
	John Brookes	Santos	Newcrest Mining	120 PJ over 15 years for Telfer gold mine in Pilbara	> 2020
Aug	John Brookes	Apache (55%) Santos (45%)	Wambo Power Ventures	215 Bcf (118 Bcf net to Apache) at daily rate of 39 million cubic feet (21 MMcf net to Apache). 15 year contract, extendable by an additional 10 years by mutual agreement. First delivery second half 2008	> 2023
2004 Aug	John Brookes	Apache (55%) Santos (45%)	Newcrest Mining	120 PJ over 15 years for Telfer mine. Gas initially supplied from East Spar until John Brookes commences production mid 2005	2020
2001 Dec	Harriet	Apache Kufpec Tap Oil	Burrup Fertilisers	Take-or-pay 82 TJ/d over 25 years, commencing in 2004	2029
Other contracts					
	Via Varanus		B	23 TJ/d	2014
	Via Varanus		South West Cogen	32 TJ/d	2020 est
	Via Varanus		Wesfarmers	22 TJ/d	2020 est
	Via Varanus		Telfer	22 TJ/d	2020-2030

3. Growth in gas annual consumption

Electricity demand for the South West Interconnected System is currently growing by around 2.5% per annum in terms of peak and baseload demand. This represents a decline from the steady 3% annual growth rate in recent years.

Studies on the WA domestic gas market have used different annual growth rates ranging from 2.5% to 4.5%.

Applying a 2.5% annual growth rate to the State's current consumption of 1000 TJ/d would see demand rising to around 1190 TJ/d in 2020. This represents an increase of 190 TJ/d.

A 3% annual growth rate would see demand rising to 1230 TJ/d in 2020, an increase of 230 TJ/d.

A 3.5% growth rate would see demand rising to 1270 TJ/d, an increase of 270 TJ/d.

The above assessments *exclude* any potential demand from major new project developments such as in the Pilbara and Mid-West. These and other projects have the potential to be a major new source of demand. For instance, ACIL Tasman reports that major iron ore developments in the Pilbara could require 1229 petajoules (PJ) of gas from 2012 to 2025.³

A 2010 Report by Energy Consulting Services also identified a number of potential projects with domestic gas demand. The report identified some 435 TJ/d in potential domestic gas demand (230 TJ/d for the Pilbara and 205 TJ/d for the rest of the State).⁴

Table 4: 2010 ECS Report – potential projects with significant new gas demand

Pilbara
BHP Billiton iron ore expansion
Rio Tinto iron ore expansion
FMG expansion
Citic Pacific Cape Preston
Moly Mines molybdenum
Aurox Balla Balla vanadium
Australasian Resources Balmoral South
Mid West
Sinosteel Koolanooka/Jack Hills
Asia Iron Extension Hill
Ferrowest Yalgoo pig iron
Gindalbie Karara
Midwest Weld Range
Oakajee port
Goldfields
Worsley expansion
Newmont Super pit expansion
Wagerup 3
Anglo Gold Tropicana
South Laverton gold (Saracen Gold)
Wingellina nickel

³ Mark Chatfield, *Infrastructure and Energy in the Pilbara*, presentation to Mining the Pilbara conference, ACIL Tasman, July 2012.

⁴ Energy Consulting Services, *Western Australia Natural Gas Demand and Supply – A Forecast*, June 2010.

Honeymoon Well nickel metal
Sinclair nickel concentrate
Aldiss/Randalls gold
Mt Windarra nickel concentrate
Other
CSBP ammonium nitrate

4. Possible sources of replacement supply

There are currently four potential new domestic gas projects completed or under construction. **Table 5** lists these projects and their domestic gas processing capacity (and expected production if known).

More than half of the new domestic gas processing capacity under construction is the direct result of domestic gas reservation - Gorgon (300 TJ/d) and Wheatstone (200 TJ/d). Without domestic gas reservation, it is likely that neither of these projects would supply the WA market.

Table 3 excludes possible domestic supply from the Pluto Project. While Pluto is subject to a 15% domestic gas reservation commitment, the obligation to supply only arises five years after first LNG exports (which commenced in 2012) and only if commercially viable. This gives rise to considerable uncertainty on domestic supply.

Also excluded are prospective new onshore gas developments such as the Canning Basin. While these could supply the domestic market, the potential timing and volumes are uncertain at this stage.

Table 5: Potential new domestic gas processing capacity to 2020

Project	Participants	Domgas capacity (expected production if known) TJ/d	Commencement date
Devil Creek	Apache, Santos	215 (120)	2012
Macedon	BHP, Apache	220	2014
Gorgon	Chevron, Shell, ExxonMobil	300 (150)	150 TJ/d in 2016, with remaining 150 TJ/d by 2021
Wheatstone	Chevron, Apache and others	200	2016 but now 2018/19?

5. Processing capacity vs. actual supply

It should be stressed that domestic gas processing capacity is simply that and should not be equated to or deemed to be actual supply outcomes or the timing of any such supply.

For instance, the NWS Project has historically supplied at well below its domestic gas processing capacity of 700 TJ/d. Current supply volumes of 570 TJ/d equate to around 80% of capacity. The Project is however mature and the NWS producers are prioritising LNG exports. Domestic supply is expected to fall further as the existing long term domestic gas contracts expire.

The Gorgon Project has delayed meeting its full 300 TJ/d domestic gas commitment until 2021, some six years after expected Project start-up.

While Devil Creek commenced operations in December 2011, production is only expected to ramp-up to 110 TJ/d, half the project capacity of 220 TJ/d. Timing of any production increase to the full 220 TJ/d remains uncertain.⁵

6. New gas projects vs. gas-on-gas competition

The new gas developments should help meet the State's domestic gas needs. However, the domestic gas market will continue to be characterised by joint selling, cross-ownership and concentration in supply.

For example, Shell and Chevron are participants in the Wheatstone and joint selling Gorgon Projects, as well as the joint selling NWS Project.

Apache Energy is a participant in Macedon (together with NWS participant BHP Billiton) and Wheatstone (together with NWS and Gorgon participant Chevron), as well as in other Apache-led joint ventures.

Any gas-on-gas competition from new projects will therefore be minimal. This will limit any potential downward pressure on domestic gas prices.

Joint selling must cease in 2015 when existing ACCC authorisations for the NWS and Gorgon Projects expire.

DISCLAIMER

This study was compiled from limited publicly available sources and a general understanding of the existing WA market. It does not seek to provide a definitive projection or analysis of the market which could in any event change with future project developments.

⁵ IMOWA, *Statement of Opportunities*, June 2012, citing Apache Energy, *Project Fact Sheet – Devil Creek Domestic Gas Project*