

What's a Fair Price for Domestic Gas?

\$12 Per Gigajoule Is Too High

Executive Summary

There has been much discussion about the need for a domestic gas reservation for Australia's east coast market, or a price cap, and prices have been widely bandied about by government, industry and commentators.

There has been little analysis done on what constitutes a fair domestic gas price for both producers and consumers. Western Australia's domestic gas reservation policy, in operation since 2006, has delivered gas at prices in the \$5-7/Gigajoule (GJ) range.

This briefing paper seeks to dimension what a fair price is and comes to the conclusion that a price cap of \$7/GJ allows for substantial profits over and above a return on investment for the majority of gas produced on the east coast of Australia. A price cap of \$7/GJ would see all producing fields make a return on equity and a profit on top.

This paper also makes the case for a domestic gas reservation on the east coast of Australia for the following reasons:

- The gas industry's profitability is determined by export sales, not domestic prices, as over 70% of gas produced on the east coast of Australia is exported.
- Eastern Australia is swimming in gas. There is not, nor has there ever been, a shortage of gas on the east coast of Australia.
- The developed proven and probable reserves — that is, those that the gas industry could utilise in the short term — are equivalent to 8.4 years of production at the current record production rates of 2021. There is no shortage of gas, just a shortage of desire to supply it at a reasonable price.
- All state governments in Australia, and the federal government, have Net Zero commitments by 2050 yet there is widespread government support for unnecessary new gas fields. The development of new gas fields is entirely inconsistent with any net zero ambition. There appears to be unwarranted exceptionalism for gas.
- The Australian Competition and Consumer Commission has forensically described how the gas market on the east coast is controlled by a 'cartel', that controls production and fixes prices, in its never-ending gas price enquiry in operation since 2015. It unfortunately refuses to label the cartel correctly. Incorrect labelling leads to the mirage that a market for gas exists on the east coast of Australia. A market simply does not exist.

- A proposed \$12/GJ price for gas gifts the gas cartel super profits for the majority of their production to the detriment of Australian energy consumers.
- If the government caps prices at the high price of \$12/GJ, with little or no evidence for so doing, it risks continuing deindustrialisation in Australia with the unintended consequence of higher global emissions of greenhouse gases.

Production Costs

To determine a fair price for gas in eastern Australia we must look at how much it costs for the gas companies to produce gas and get a return on their investment.

The Australian Energy Market Operator (AEMO) Gas Statement of Opportunities 2022¹ produced a table outlining the production costs of all the fields on the east coast of Australia.²

Table 1: Gas Production Costs on all Fields in Eastern Australia (\$/GJ)

Basin	2P	2C
Amadeus	–	\$6.50
Bass	\$5.85	\$8.45
Bonaparte	\$5.00	\$6.23
Bowen/Surat	\$4.55	\$7.09
Clarence-Moreton	–	\$6.02
Cooper/Eromanga	\$5.18	\$7.02
Galilee-Drummond	–	\$6.38
Beetaloo/Georgina	–	\$5.35
Gippsland	\$6.55	\$7.96
Otway	\$4.16	\$7.41
Sydney (Camden)	\$6.60	\$7.67
Gunnedah	\$6.39	\$6.39

Source: AEMO estimates incorporating Rystad Energy break-even costs and previous GSOO inputs, adjusted to include return on capital.

Notes: Production costs to the point of injection.

(1) Overall production costs assumptions: • Production costs are the marginal cost of producing a GJ of sales gas to the point of sale into a transmission pipeline (inlet flange) and thus exclude transport costs. • Costs include operating costs, capital costs, royalties, tax and a return on capital. • Importantly they are not intended to reflect gas sale prices, only the marginal cost of actually supplying the gas. • For 2P reserves, production costs include largely marginal operating costs, royalties and tax. • For 2C reserves, marginal costs also include the cost of drilling and completion and marginal gas processing plant costs. • Where a gas plant does not exist, the marginal cost will include an estimate of a per unit cost of capital and operating cost for that plant.

(2) 2P reserves are proven and probable reserves. In simple terms these reserves are highly likely to be developed with current business conditions. 2C reserves are contingent reserves that have not been as well defined or are contingent on higher prices.

As can be seen from Table 1, all production costs include a return on equity (meaning that they make a return on investment and are therefore able to reinvest in more production) and a handsome profit at \$7/GJ. The major coal seam gas (CSG)

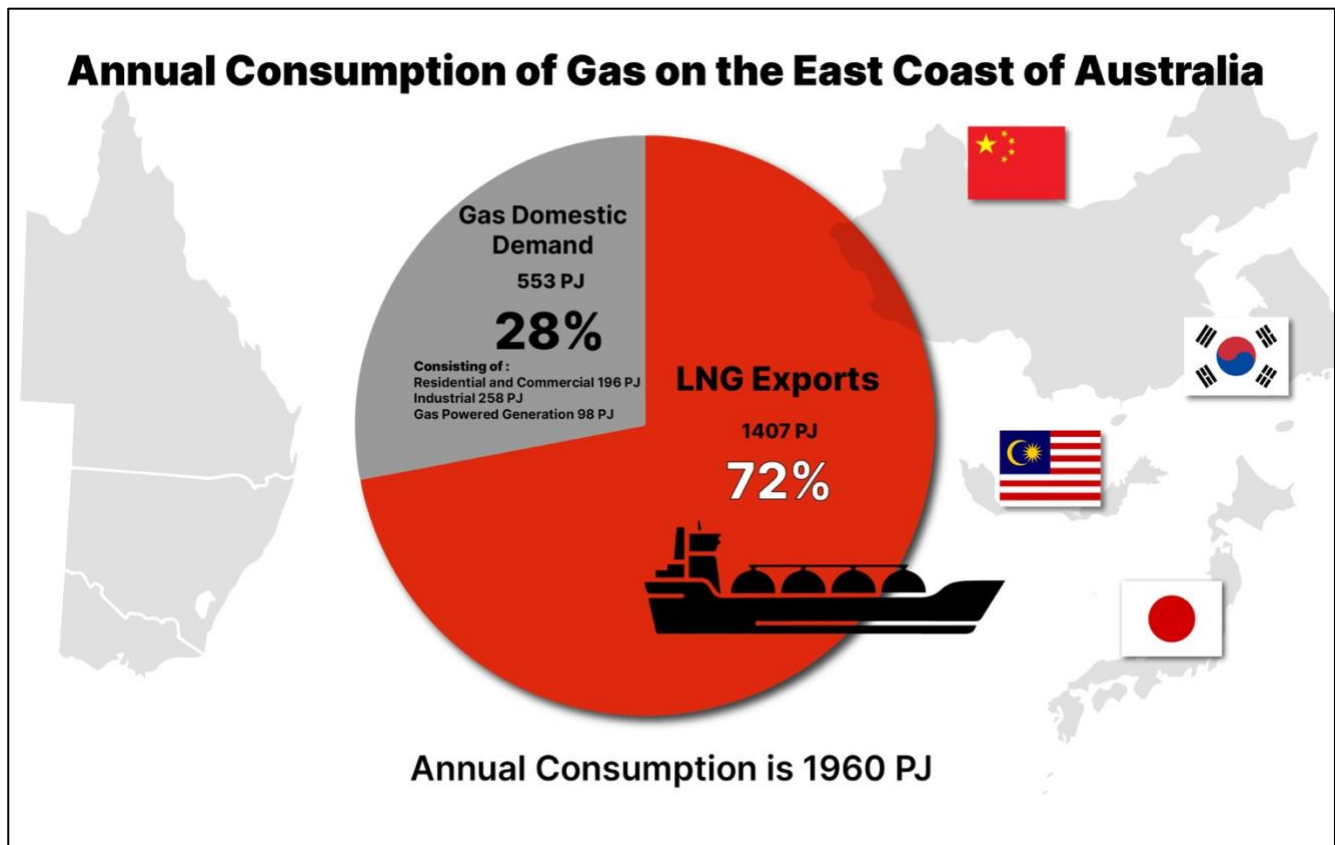
¹ AEMO. 2022 Gas Statement of Opportunities Supply Data. 29 March 2022.

² The east coast of Australia includes the Northern Territory, Queensland, New South Wales, Victoria, South Australia and Tasmania.

production regions of the Bowen and Surat basins in Queensland account for approximately 64% of known proven and probable reserves on the east coast of Australia. These two basins have production costs (including a return on equity) of just \$4.55/GJ making them very profitable at \$7/GJ. At \$12/GJ the government is gifting these producers' super profits.

The east coast of Australia is an export-dominated market with over 7 out of every 10 petajoules of gas exported. The prices of gas exports, both contract and spot, are far more important than domestic sales to most gas companies. Gas export contracts are generally oil linked so the price of oil is a major determinant of company profitability.

Figure 1: Annual Consumption of Gas on the East Coast of Australia, 2021



Source: AEMO.

Note: The east coast includes Northern Territory, Queensland, NSW, Victoria, South Australia and Tasmania.

What About Western Australia?

West Australians typically pay \$5-7/GJ under their domestic gas reservation scheme. Historically, east coast gas production costs have been higher than those in Western Australia. In recent years we have witnessed cost containment by east coast gas producers.

With flat to declining costs and high war-induced profit margins, why should east coast domestic consumers pay twice the price for gas than their Western Australian counterparts?

Gas Reserves

The east coast of Australia is swimming in gas. It has such an abundance of gas that over 70% of gas produced on the east coast is exported.

**Table 2: Eastern Australian gas reserves
Survey Data (Petajoules)**

Basin	2P		2C
	Developed	Undeveloped	
Total	16,432	15,810	58,516

Reserves and resources as at December 2021

Rystad Energy Data (Petajoules)

Basin	2P	2C ⁽³⁾
Amadeus	139	388
Bass	147	274
Bonaparte	3,522	6,843
Bowen/Surat ⁽¹⁾	21,818	39,456
Clarence-Moreton	2,083	4,900
Cooper/Eromanga	1,337	16,635
Galilee-Drummond	3	229
Beetaloo/Georgina ⁽²⁾	0	34,337
Gippsland	2,014	3,197
Otway	832	1,319
Sydney (Camden)	5	1,948
Total	31,900	109,525

Source: Rystad Energy (supplied on a volume basis, converted to petajoules using a heating value of 947.8171 cf/GJ)
Reserves and resources as at December 2021

Notes:

(1) Rystad Energy includes Gunnedah basin reserves as part of the Bowen/Surat basin.

(2) Rystad Energy includes McArthur basin reserves as part of the Beetaloo/Georgina basin.

(3) 2C reserves include all available reserves, regardless of technical feasibility.

Source: *AEMO 2022 Gas Statement of Opportunities Supply Data*.

Note that unusually, Rystad places the Gunnedah Basin (Santos' troubled Narrabri Gas Project) in with the Queensland Bowen and Surat basins. According to the Australian Government's bioregional assessment,³ the Gunnedah Basin has approximately 1,520PJ of 2P (proved and probable) reserves. Backing the Gunnedah

³ Australian Government. *Bioregional Assessment*. 2018.

Basin out of the Bowen and Surat basins' reserve numbers shows how dominant these basins are on the east coast accounting for 64% of known reserves.

The nature of the industry has dramatically changed as traditional sources of gas such as the Bass Strait have declined. More gas is being produced onshore and from unconventional gas production techniques such as CSG (mainly in Queensland) and increasingly the industry is looking towards developing Shale gas particularly in the Northern Territory.

The export facilities in Queensland were built on the back of CSG reserves in Queensland. The defining feature of unconventional gas is the continuing need to drill more wells. The short run nature of CSG wells effectively means that production is only planned 1-2 years in advance.

Unfortunately, the AEMO appears not to have caught up with the change in nature of the industry and keeps forecasting "shortages" in the out years. These "shortages" never eventuate as the gas companies drill to demand on a shorter cycle. If a shortfall looks likely in the short term the gas companies can respond in the short term.

The idea of a shortage of supply is promoted by the gas companies to scare policymakers into approving highly unpopular projects such as the Narrabri Gas Project. The Narrabri Gas Project received more objections than any project in NSW planning history.⁴ As such it has failed to gain a social licence to operate and will face ongoing active opposition. Governments of all persuasions should be wary of forcing unpopular projects on the populace.

In summary, the developed proven and probable reserves — that is, those the gas industry could utilise in the short term — are equivalent to 8.4 years of production at the current record production rates of 2021. There is no shortage of gas just a shortage of desire to supply it at a reasonable price.

To meet our governments, both state and federal, net zero emissions targets Australia cannot develop any new gas fields. The International Energy Agency has repeatedly called for no new gas fields if the world is to reach net zero emissions by 2050.⁵

If we exclude the undeveloped gas basins (McArthur, Beetaloo, Georgina, Galilee and Gunnedah) the total proven and probable reserves (developed and undeveloped) equate to over 15.5 years of production at current record rates seen in 2021.

There is no shortage of gas, in any reasonable time frame, on the east coast of Australia.

⁴ NSW Government. [NSW Government assessment of the Narrabri Gas Project proposal update](#). 24 April 2018.

⁵⁵ IEA. [Pathway to critical and formidable goal of net zero emission by 2050 is narrow but brings huge benefits](#). 18 May 2001.

The Need for More Supply?

Industry and governments constantly repeat the need for more supply. It would appear that they have forgotten the fundamentals of economics.

Economics dictates that markets are made up of supply and demand and require multiple buyers and sellers to function efficiently.

The East Coast Gas Cartel

The east coast gas supply is dominated by just a handful of suppliers (Woodside, Shell, PetroChina, Exxon, Santos and Origin) who act exactly like a cartel. They control the supply to keep the domestic market starved and prices high (often above international prices). They engage in anti-competitive practices to ensure that they maintain an iron grip on price.

The latest Australian Competition and Consumer Commission (ACCC) report⁶ on the gas industry forensically details all the key aspects of a cartel-like operation in the eastern Australian gas market but fails to use the correct economic term — a cartel.

The key features of a cartel are:

1. **Control over the market.** The ACCC outlines this emphatically:

“On an aggregate basis, the LNG [liquefied natural gas] exporters and their associates had influence over close to 90% of the 2P reserves in the east coast in 2021, through a combination of their direct interests in 2P reserves, joint venture and exclusivity arrangements.”⁷

(Note 2P reserves are proven and probable reserves — that is, those that are highly likely to exist and be currently economic.)

2. **Joint ventures (JV) lessening competition**

“A JV participant can also have the incentive and opportunity to exploit their position in a JV to delay the development of gas if it improves the participant’s competitive position in other projects.”⁸

3. **Joint Marketing — cementing control of prices**

“Joint marketing by incorporated and unincorporated JVs is more prevalent than we expected, with the LNG exporters and some other producers engaging in joint marketing in the domestic market without authorisation. This results in a material reduction in the number of producers competing to supply gas into the domestic market.”⁹

⁶ ACCC. [Gas inquiry July 2022 interim report](#). 1 August 2022.

⁷ ACCC. [Gas inquiry July 2022 interim report](#). 1 August 2022. Page 8.

⁸ ACCC. [Gas inquiry July 2022 interim report](#). 1 August 2022. Page 15.

⁹ ACCC. [Gas inquiry July 2022 interim report](#). 1 August 2022. Page 15.

4. **Exclusivity provisions in gas supply arrangements (GSAs)** — strangling production for, and competition in, the domestic market.

“Exclusivity provisions in GSAs entered into between domestic producers (as sellers) and LNG exporters (as buyers) are restricting the ability of domestic producers to compete to supply gas into the domestic market. These provisions can also reduce the incentive that domestic producers have to develop gas over time and result in development decisions being based on the requirements of the LNG exporters, rather than the domestic market.”¹⁰

5. **The cartel extending its power through mergers and buying Joint Venture partners**

“Mergers and acquisitions of other producers, tenements or interests in JVs by larger producers, can result in a reduction in producers competing to supply gas into the market and slow the progress of gas development.”¹¹

Despite the solid evidence provided by the ACCC, over the last seven years and countless reports in its never-ending gas inquiry, it squibs the issue and does not call a spade a spade. We are dealing with a cartel.

When a cartel is in operation of a market it simply does not matter how much supply is made available, prices will remain at the mercy of the cartel. The cartel will ensure domestic prices remain at high levels, often above those of our international customers.

The Other Side of Markets

Markets have two sides, demand and supply. The demand side is largely missing from the debate on gas prices.

The quickest, cheapest and easiest way to increase net supply is to reduce demand for gas. Currently 36% (196 PJ pa) of gas consumed on the east coast of Australia is consumed by residential and commercial customers. It is relatively easy to switch residential consumers from gas to electricity. Gas is an expensive fuel in the home needing a second energy connection fee. Electric appliances have become efficient and cheaper to run than gas appliances. It is cheaper to heat your home and water¹² with a modern efficient heat pump¹³ and cook with induction. Over time it is possible to free up gas for export and domestic industry by getting the residential consumer off gas. Likewise, many commercial and industrial sector gas consumers

¹⁰ ACCC. [Gas inquiry July 2022 interim report](#). 1 August 2022. Page 15.

¹¹ ACCC. [Gas inquiry July 2022 interim report](#). 1 August 2022. Page 15.

¹² Australian Government. [Department of Climate Change, Energy, the Environment and Water. Hot Water Systems](#).

¹³ Melbourne Energy Institute. [Switching Off Gas- an examination of declining gas demand in Eastern Australia](#). 26 August 2015.

can be converted to electricity economically. The Victorian government has already made some moves in this direction.¹⁴

Unintended Consequences of High Gas Prices

High gas prices have had the effect of sending Australian gas-intensive industry offshore. Will \$12/GJ be low enough to ensure that this does not continue to occur? Probably not. In essence Australian gas-intensive manufacturers have several competitive disadvantages. Australia is a small market with relatively high labour costs. Our abundance of energy should be a source of competitive advantage, but as it stands gas in Australia is too expensive. A price below \$7/GJ would make energy costs a source of competitive advantage, \$12/GJ is a far more marginal proposition.

A great example of this is fertiliser manufacturing. Nitrogenous fertilisers are gas intensive. We have already seen Incitec Pivot close its Gibson Island plant in Queensland citing high gas prices as a major cause of its demise.

China is the major global exporter of Nitrogenous fertilisers so chances are that we will replace that domestic capacity with fertiliser from China.

This has a number of unpleasant effects:

1. Climate

To produce fertiliser in China some of the gas used is from Australia. This gas must be liquefied and shipped to China. To liquefy gas, 9% of the gas that enters an Australian LNG facility is burnt to cool the gas to -163 degrees centigrade to make LNG. A further 2-6% is lost in the shipping process. In total ~13% of the gas is burnt or lost before the Chinese customer sees it at their port. The fertiliser that is manufactured there then needs to be shipped to Australia. The net result is that it is far more climate friendly to manufacture products consumed in Australia domestically. Greenhouse gas accounting is so warped that burning more gas in Australia adds to our emissions when clearly the effect globally of manufacturing in Australia is lower emissions.

2. National security

Australia may be sleep walking into a similar situation that Germany finds itself in with its reliance on gas from Russia. China is a major trading partner for many of our largest commodity exports, LNG, coal and iron ore. Importing more fertiliser from China would make the agriculture sector wholly reliant on China for inputs at a time when trading relationships have been strained.

¹⁴ Victorian Government. [Gas Substitution Roadmap](#).

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