

Towards a Domestic Gas Reservation in Australia

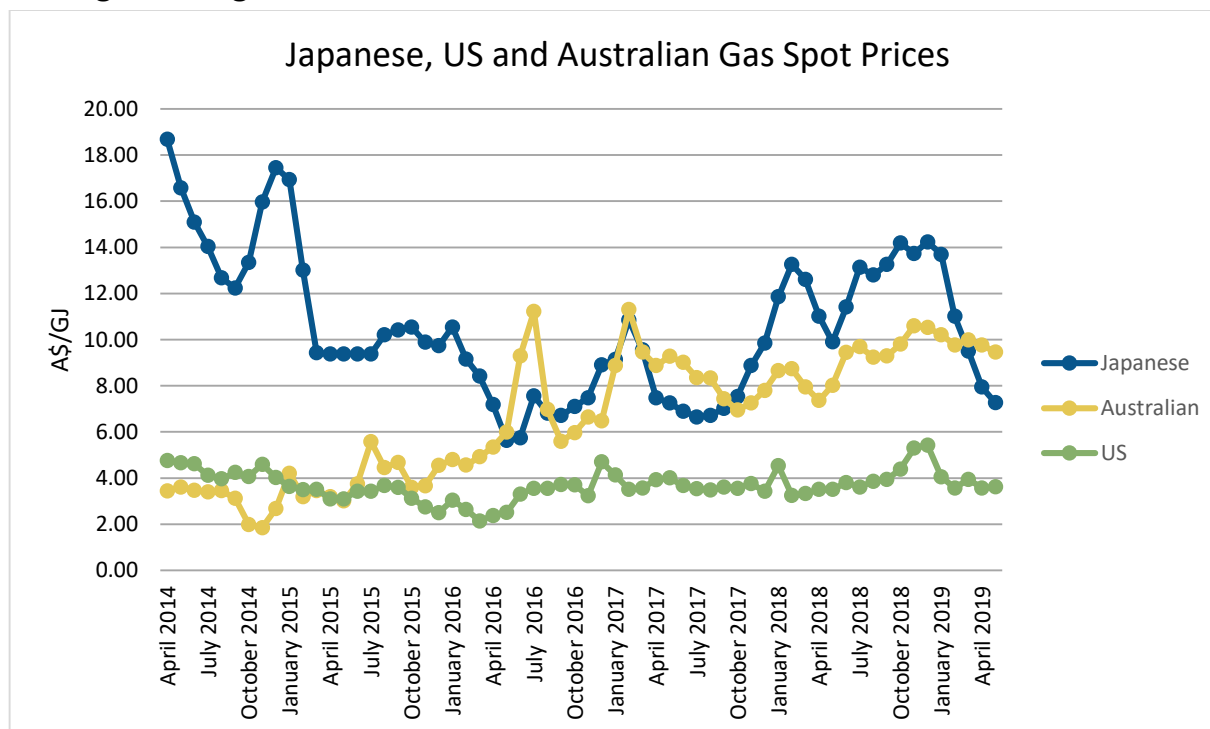
Executive Summary

Gas sets the price of electricity in Australia because it is the highest cost producer in the electricity market. As a result, Australia's high electricity prices are caused by high gas prices.

Prior to 2014, the east coast of Australia enjoyed low cost and stable domestic gas supply with reasonable prices of \$3-4/gigajoule (GJ).

Since then, domestic gas prices in Australia have become unaffordable for industry, the domestic consumer, and for electricity production. In fact, Australian gas prices are now substantially higher than one of the most expensive markets on the globe for gas, the Southeast Asian market.

Pre-2015 Australia Had Globally Competitive Gas Prices Now They Are Amongst the Highest on the Globe



Source: US Energy Information Administration, Ministry of Economy, Trade and Industry, Australian Energy Market Operator, Reserve Bank of Australia.

Australia's gas prices are also higher than in the countries of Australia's primary global export competitors – the U.S. and Qatar.

There is no market for gas on the east coast of Australia, instead there is a cartel of producers that set the price to suit their commercial profit objectives.

East coast Australian gas production has trebled at the same time as the price has trebled. Clearly basic economic concepts do not apply.

More gas production will not solve the gas price crisis on the east coast of Australia as the fundamental economic transmission mechanism, a market, does not exist. Adding more high cost gas production or locking in the additional costs of multiple regasification import facilities will only serve to entrench high domestic gas prices.

Governments can have a small role in a properly functioning market, however in this case that does not exist. Gas consumers are at the mercy of a gas cartel.

An extra \$270 in every household's pocket would be well received.

The extent of the domestic price gouge by the gas cartel highlights the pressing need for government intervention in a failed market.

Australia's gas reliant manufacturing is going broke and shutting down. Gas powered generation, far from being a transition fuel, is declining due to high gas prices.

The secondary effects of gas prices increasing electricity prices are significant. Inaction on gas prices is having a high economic cost for the entire Australian economy.

Every major gas producing nation in the world has some form of gas reservation policy, except Eastern Australia. Even Western Australia has a domestic reservation policy that has been successfully implemented. It has fostered gas intensive manufacturing and still allowed for an investment boom into LNG production.

The solution to excessively high domestic gas prices is a full domestic gas reservation policy fixing prices at \$5/gigajoule (GJ) on existing and future gas production.

This is a substantial rise of 25-65% on historical Australian prices before 2015 of \$3-4/GJ. It would allow a healthy blended profit margin for gas companies. It would still be substantially above our global competitors in the U.S.

Lower gas prices would have flow on effects into lower electricity prices as gas sets the price for electricity in the National Electricity Market (NEM).

The effect on commercial and industrial (C&I) consumers of electricity would be to reduce their electricity bills by 27%. The effects of a fall in wholesale prices on retail electricity prices (the prices consumers actually pay) would be to reduce them by 18%. In dollar terms, retail electricity bills would fall by \$270 per annum.

An extra \$270 in every households' pocket would be well received and would result in increased consumption in the economy.

An A\$5/GJ price would allow domestic wholesale gas prices to halve for gas intensive industry and gas-powered generators, in turn lowering the wholesale price of electricity. The end result would be to allow energy intensive manufacturing to prosper in Australia.

Introduction

Prior to 2014, the east coast of Australia had a stable domestic market for gas with reasonable prices of \$3-4/gigajoule (GJ).

With the advent of six trains across three export plants at Gladstone in Queensland all opening up virtually concurrently in 2015, domestic gas prices increased rapidly to peak at \$21/GJ in early 2017.¹

Prices have since come down and now stand at between \$8 and \$12/GJ according to the Australian Competition and Consumer Commission (ACCC).²

Australian domestic gas prices are tightly controlled by a small cartel of producers. The cartel is struggling to make money on export contracts as global prices have collapsed. To maintain profits, it is price gouging the Australian domestic consumer.

Australian consumers and its domestic industry now pay more for gas than Australia's gas customers in Southeast Asia.

The extent of Australia's domestic extended price gouge has led to a strategic farce where Australia will in all probability have to re-import some of the gas it has exported.

High gas prices are affecting the broader economy, especially gas dependant manufacturers. Some gas dependant manufacturers have already closed, and many are waiting for low priced contracts to roll off before closing. However, it is not just gas dependant industry that is affected.

A domestic gas reservation policy must reserve both existing and future production of gas.

The ACCC has highlighted how gas sets the price for electricity in the National Electricity Market (NEM) and high gas prices have led to high wholesale electricity prices.

Every major gas producing nation in the world has some form of gas reservation policy, except Australia.

A domestic gas reservation policy, to be effective, must reserve both existing and future production of gas.

¹ ACCC, [Gas inquiry 2017-2020 Interim Report](#), Page 18, April 2019.

² Ibid, Page 19.

This paper examines the key issues surrounding the introduction of a domestic gas reservation policy in Eastern Australia, and concludes it is the best way forward for the nation to resolve the impossible mess that the international gas cartel has inflicted on Australia over the past 5 years.

The Gas Market Structure in Australia Boasts a Cartel

There is no functioning market for gas in Australia. It does not exist. If there was one, the price on the east coast of Australia would follow the price of gas in international markets less the costs of liquefaction and shipping, or what is known as the “netback” price.

Australians pay more for gas than one of the highest priced markets in the world, the Southeast Asian market. That market is almost entirely supplied by expensive Liquefied Natural Gas (LNG) imports.

The cartel has priced domestic gas so high that demand is falling.

Australia’s east coast market is controlled by just a few players: Shell, Santos, Origin, BHP and Exxon, and together they keep the domestic market starved of gas by supplying the commodity at uneconomic prices. This enables the players to develop high cost onshore gas to supply the domestic market, whilst exporting lower cost sources of gas – gas that people in Australia had successfully relied upon for fifty years - to satisfy the demands of their export plants at Gladstone, Queensland.

There is however one flaw in the cartel’s logic. They have priced domestic gas so high that demand in Australia is falling. Gas dependant industry is closing, domestic consumers are switching fuel sources, and gas is being used less for electricity production. In effect, the gas industry is killing the goose that laid the golden egg.

Global Gas Prices Have Collapsed

The world is awash with LNG capacity and globally prices are very weak. In fact, prices for gas in Asia have collapsed.

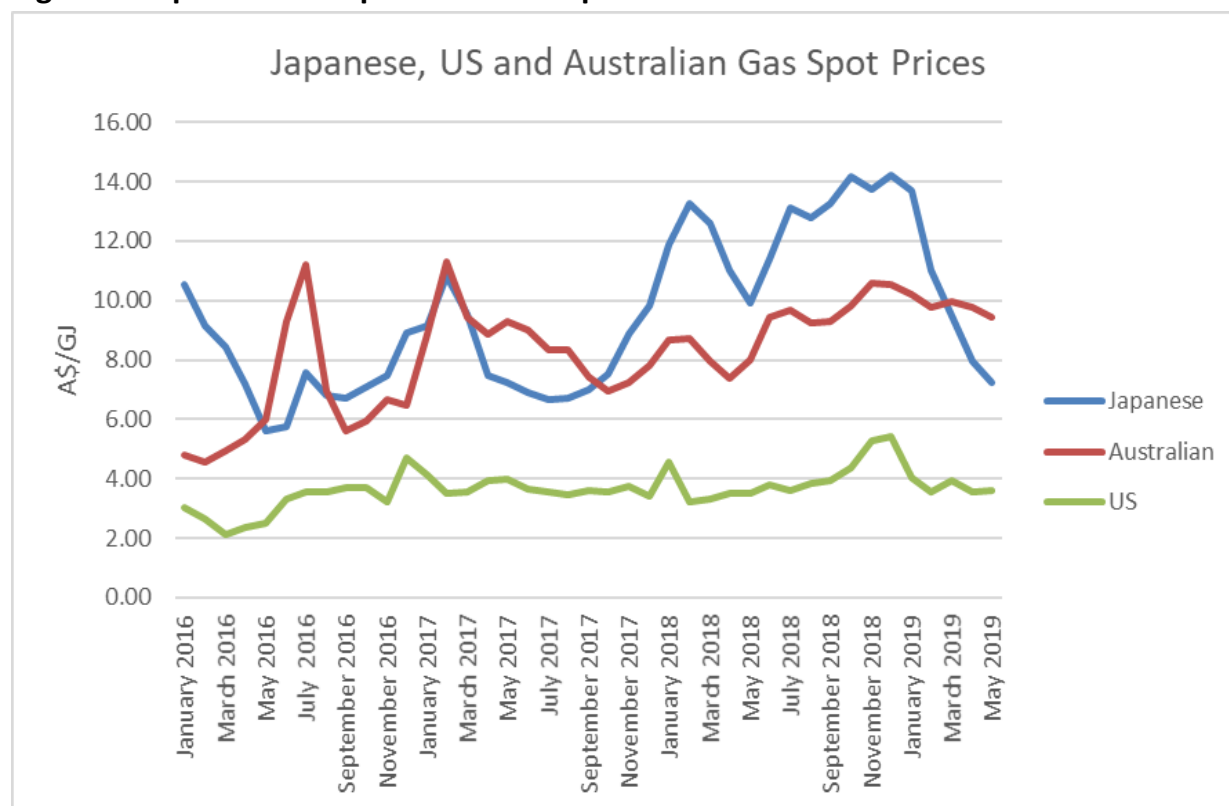
Figure 1: Global LNG Prices Collapse

Source: S&P Global Platts.

According to the ACCC, Australian gas consumers should have been paying the netback price of \$5.46/GJ for spot gas in May 2019³. Instead, Australian consumers paid \$9.46/GJ during May, some 73% more than they should have paid.

The extent of the domestic price gouge by the gas cartel highlights the pressing need for government intervention in a failed market.

³ ACCC, Gas Inquiry 2017-2020, 1 July 2019

Figure 2: Japanese Gas Spot Prices Cheaper Than Australia

Source: US Energy Information Administration, Ministry of Economy, Trade and Industry, Australian Energy Market Operator, Reserve Bank of Australia.

Australia, the World's Largest Gas Exporter, Has Five Proposed Gas Import Terminals

In 2019, Australia is set to become the world's largest exporter of LNG.⁴ At the same time, Australia currently has five import terminals proposed to supply the eastern Australian market (Table 1).

⁴ Reuters, [Australia grabs world's biggest LNG exporter crown from Qatar in Nov, 10 December 2018](#).

Table 1: Australian Gas Import Terminal Proposals as at January 2019

Australian Gas Import Terminal Proposals as at January 2019						
Location	Consortium	Consortium Members	Capacity (PJ)	Expected Cost (A\$M)	Proposed Start Date	
Newcastle, NSW	Energy Projects & Infrastructure Korea (EPIK)	Kogas	200*	550 -590	Commenced preliminary works with the Port of Newcastle	
Woolongong, NSW	Australian Industrial Energy	Squadron Energy (Andrew Forrest), JERA, Marubeni	100	200-300	First gas to market in 2020	
Cribb, Vic	AGL	AGL	40 rising to 100	250	First gas to market in 2021, Final investment decision by June 2019	
Victoria	ExxonMobil	ExxonMobil	50*	150	2022	
Pelican Point, SA	Venice Energy	Mitsubishi, Integrated Global Partners	50*	750-800 ^a	December 2020	
Total			500			
*IEEFA estimate						
^a (including a 500MW gas power station)						

Source: Media Reports.

The extent of the domestic gas price gouge means it is now economic to import gas into Australia. Global players have identified a high-priced market in Australia and the opportunity to supply that market with high cost LNG.

Liquefaction of gas is an inherently expensive process. It has high capital costs and very high energy costs to super cool the gas down to -162 °C. LNG plants are in effect giant refrigerators that shrink the volume of gas by around 600 times, thereby making it more economic to transport in ships.

That the proposals to build import terminals would supply over 90% of the entire demand for gas on the east coast of Australia is testament to the fact that, in the commercial opinion of a varied selection of LNG global trading companies, Australian consumers pay well above global prices for gas.

If Australia imports its domestic gas needs, it is embedding in the domestic price three services it does not need: the cost of liquefaction; the cost of shipping; and the cost of re-gasification.

Australia - the world's largest gas exporter - could be an import supplied market.

The extent of the domestic gas price gouge means it is now economic to import gas into Australia.

Australia Has Tripled Gas Supply, Yet Prices Have Also Tripled

Will More Supply Fix the Problem?

Gas supply on the east coast of Australia has essentially tripled since 2014 and gas prices for Australian consumers have also tripled. More supply should lead to lower prices if a market for gas existed on the east coast of Australia. However, a market simply does not exist. As a result, more supply simply plays into the hands of the cartel players that control gas supply.

The Myth of the South Eastern States Not Producing Sufficient Gas

Gas production from the south eastern states of NSW, Victoria, Tasmania and South Australia is above the levels needed to supply these domestic markets.

The Australian Energy Market Operator (AEMO) shows, in its Gas Statement of Opportunities 2019, that gas consumption in the south eastern states is below what is produced there. In 2018, actual production was 433 Petajoule (PJ)⁵ and consumption just 431 PJ.⁶ Gas production in the southern states of Victoria,

⁵ AEMO, *Gas Statement of Opportunities 2019*, Page 5 Table 1.

⁶ *Ibid*, Page 20 Table 5.

Tasmania, NSW and South Australia grows in the forecast period. It is expected that gas production will grow by 5% from 433 PJ in 2018 to 456 PJ in 2022.

Table 2: Breakdown of Production Forecast in Southern Fields, Between Existing and Committed Projects and Anticipated Projects to 2022 (PJ)⁷

	2019	2020	2021	2022
Southern production – existing and committed projects	444	442	417	378
Southern production – anticipated projects	-	33	63	79
Southern production – total	444	475	480	456

Source: AEMO.

The surplus production in the southern states should grow more strongly than production as demand for gas falls. We have already seen major declines in industrial demand for gas in 2019 as industries such as Claypave, RemaPak and Dow Chemicals shut their doors in part due to high gas prices.⁸

High gas prices have crimped demand for domestic use and for gas powered generation.

Increasing the Costs of Production Increases the Gas Price

Whilst the gas industry thrives on opacity, and any production cost numbers supplied are plagued by inconsistencies in the methods of calculation, it is widely accepted that conventional sources of gas from the Bass Strait and the Moomba gas fields are cheaper than the unconventional coal seam gas (CSG) sources from Queensland.

A report commissioned by the ACCC and authored by Core Energy and Resources⁹ found that the vast bulk of conventional gas reserves are produced at \$2.95 - \$3.90/GJ, a much lower cost than the vast bulk of unconventional gas reserves produced at \$3.65 - \$6.40/GJ.

Producing more high cost gas will not bring down the cost of gas.

The entire east coast export market was premised on the production of cheap unconventional gas from coal seams, principally in Queensland.

⁷ Ibid, Page 38.

⁸ Sydney Morning Herald, "How to finish off manufacturing: become the world's biggest gas exporter" 3 June 2019.

⁹ Core Energy and Resources, Gas Production Cost Estimates, Eastern Australia- ACCC Gas Market Inquiry, Page 24, November 2018.

However, gas exporters got their numbers horribly wrong¹⁰ and instead of producing cheap gas at the well head, they produced expensive gas at the well head. The wells they drilled also declined faster than expected and they produced more water than expected, leading to higher costs.

The exporters solution was to foist this high cost gas onto the domestic Australian consumer and export the traditional cheaper sources of supply.

Today, gas companies are constantly imploring governments to open up new onshore gas fields as a solution to the gas price crisis faced in Australia.

Producing more high cost gas will not bring down the cost of gas for the Australian domestic consumer.

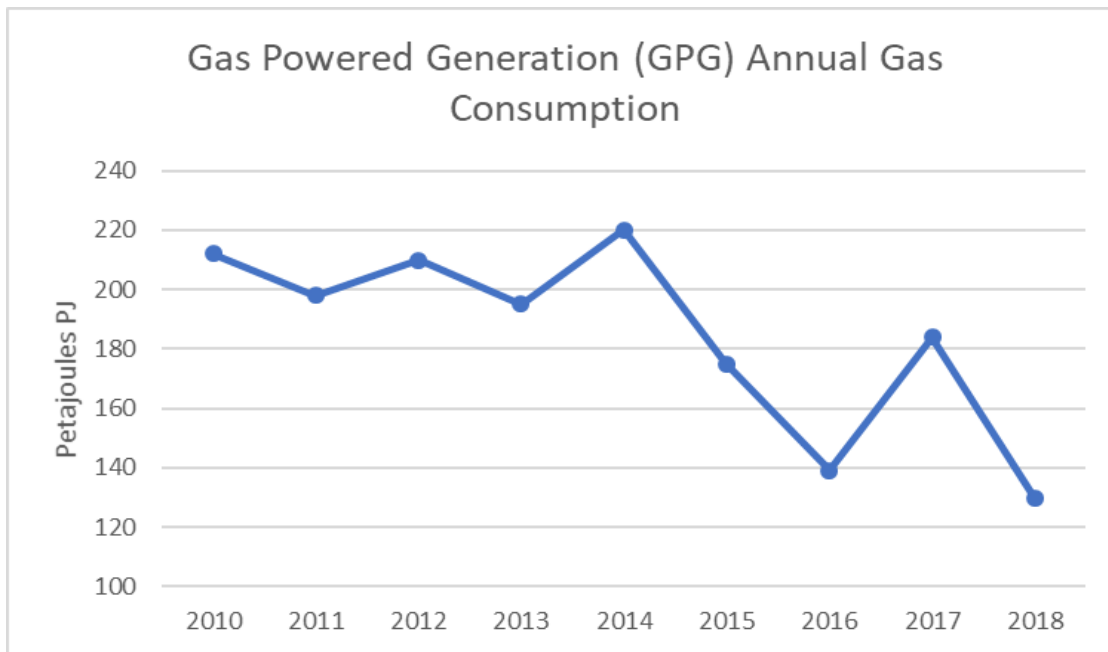
Gas Use for Electricity Production Has Fallen in the Last Decade

Gas usage for power generation is at its lowest level in a decade, at just 7.9% of the National Energy Market (NEM) in 2018 (see Figure 3). While wind and solar have increased from less than 0.5% to 11.9% over the last decade, gas usage has fallen.

Gas is not a transition fuel in Australia. It is too expensive.

Gas demand for gas generated electricity in eastern Australia has declined 41% since 2014. Simply put, gas is not a transition fuel in Australia. It is too expensive.

¹⁰ Australia's Export LNG plants at Gladstone – Page 22.

Figure 3: Gas Usage in the National Electricity Market Has Fallen Since 2010

Source: AEMO.

Domestic Gas Reservation Carries No Sovereign Risk

There are often claims made that a domestic gas reservation policy would be retrospective, opening the Commonwealth to legal claims. These claims are counter to the history of the export plants at Gladstone.

Santos asserted in the Environmental Impact Statement (EIS) for its Gladstone GLNG plant that it would *not* contribute to a future shortage of gas in the east coast market:

“The project may initially supply domestic gas markets, but it is not diverting gas from local markets to export markets. The project’s supply of gas to the domestic market is uncertain at this stage. Options to manage ramp-up gas and any gas that is surplus to the requirements of the LNG facility include a range of commercial and technical possibilities. Therefore the project has no direct implications for domestic gas prices. The gas to supply the LNG facility will come from newly developed CSG fields. The amount of gas is very small relative to the identified conventional and CSG fields reserves available to supply the Australian east gas fields. It is therefore unlikely to contribute to a future shortage of gas in the domestic market.”¹¹

Santos made additional assertions that it could supply their export project from new sources of supply:

“As Santos worked toward approving its company-transforming Gladstone LNG project at the start of this decade, managing director David Knox made

¹¹ GLNG Project - Environmental Impact Statement Chapter 6 Page 6.15.11.

the sensible statement that he would approve one LNG train, capable of exporting the equivalent of half the east coast's gas demand, rather than two because the venture did not yet have enough gas for the second."

"You've got to be absolutely confident when you sanction trains that you've got the full gas supply to meet your contractual obligations that you've signed out with the buyers," Mr Knox told investors in August 2010 when asked why the plan was to sanction just one train first up."

"In order to do it (approve the second train) we need to have absolute confidence ourselves that we've got all the molecules in order to fill that second train."

"But in the months ahead, things changed. In January 2011, the Peter Coates-chaired Santos board approved a \$US16 billion plan to go ahead with two LNG trains from the beginning."¹²

Despite the official assurances by Santos, both in approval documents for the government and in investor briefings, the company has been unable to supply its export plants and is buying gas out of the domestic market instead.

Credit Suisse estimates that Santos purchased 160PJ out of the domestic market in 2016, equivalent to 27% of domestic consumption.¹³ The purchase of third-party gas for export places tremendous pressure on domestic prices.

A domestic gas reserve enforces undertakings given by companies for the approval of their export projects.

It is a nation's sovereign right to ensure that approval documents are adhered to by project proponents. A domestic gas reserve is not retrospective or harsh, it merely enforces undertakings given by companies for the approval of their export projects.

A Domestic Gas Reserve Can Have a Positive Effect on Investment

A domestic gas reserve would have minimal effects on investment into the gas industry. Exporters have contracts they must fulfil and therefore investment will continue to flow.

It is instructive to look at the Western Australian situation where post the introduction of the domestic gas reservation in that state, there was an investment

¹² The Australian, *How Santos' Leap of Faith Became Gas Supply Strife*,

¹³ AEMO, *National Gas Forecasting Report: For Eastern And South-Eastern Australia*, Table 1, Page 4, December 2016.

boom into new LNG plants and gas fields. This boom was one of the largest in Australian resources history despite there being a domestic gas reservation.

Globally Uncompetitive Gas Prices in Australia Hurt People and Industry

Effects on Gas Dependant Industry

In 2016 Incitec Pivot built a new fertilizer plant in the USA rather than Australia citing high domestic gas prices in Australia as one of the reasons for relocating its operations.

Several gas users have already closed down during 2019 (a period of just 6 months) according to the ACCC:¹⁴

“In January 2019, RemaPak, a producer of polystyrene coffee cups in Sydney, went into administration. RemaPak’s energy costs increased by 400 per cent in a space of just three years and it could no longer effectively compete against importers. In late March 2019, Claypave, a Queensland based bricks manufacturer, also announced that it had entered into voluntary administration, citing rising energy costs, including gas costs, as a factor.”

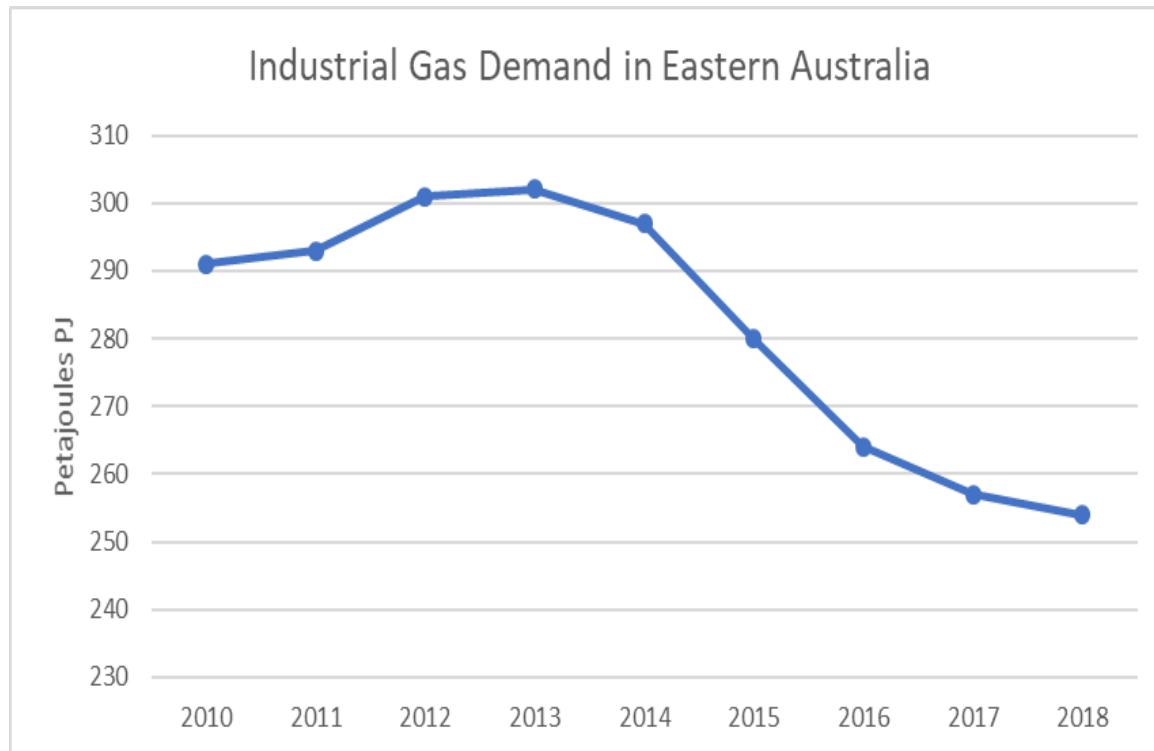
Recently another company has announced it is shutting down. Dow Chemical in Melbourne is closing, in part due to high gas prices.¹⁵

Gas demand from the industrial sector has declined 14% since 2014, although the worst is yet to come, as legacy low-priced contracts roll off and companies are forced to pay globally uncompetitive prices or shut down.

¹⁴ ACCC, [Gas inquiry 2017-2020 Interim Report](#), Page 11, April 2019.

¹⁵ Sydney Morning Herald, [How to finish off manufacturing: become the world’s biggest gas exporter](#), 3 June 2019.

Figure 4: Australian Industrial Gas Demand Falls as Globally Uncompetitive Prices Bite



Source: AEMO.

Secondary Effects on the Electricity Market

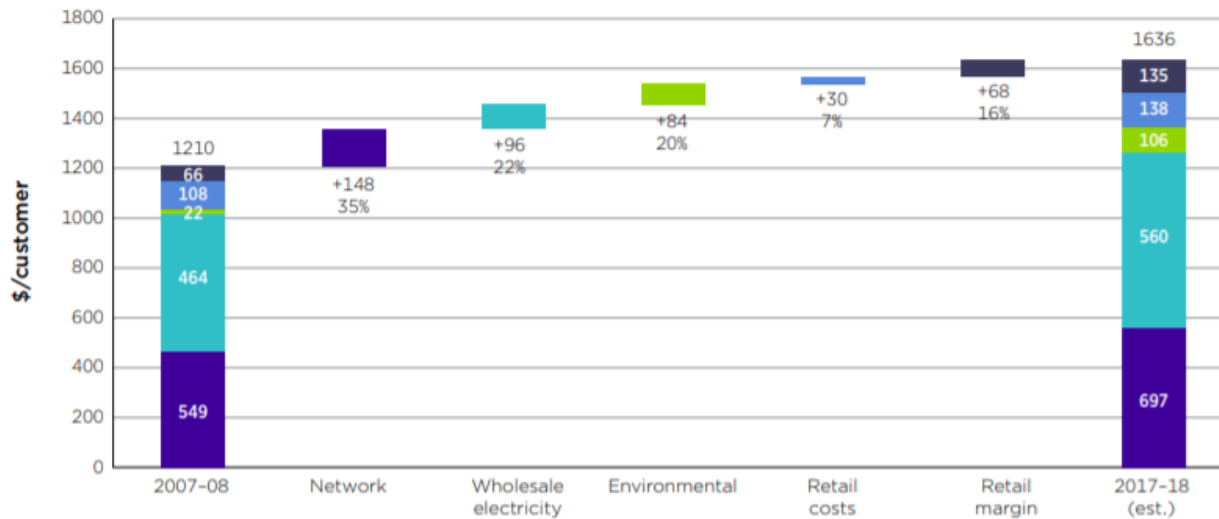
High, globally uncompetitive gas prices have major effects on the cost of generating electricity in the NEM. Energy sits at the base of the economy and high electricity and gas prices combined have ensured that the Australian economy is now struggling to be globally competitive.

High electricity and gas prices combined have ensured the Australian economy is struggling to be globally competitive.

Gas sets the price for electricity in the NEM. Being the most expensive large-scale generation source, it is the last source of energy to enter the market.

Gas prices have tripled in recent years from \$3-4/GJ to \$8-12/GJ. The ACCC has estimated that for every \$1/GJ rise in gas prices, the wholesale price of electricity rises by up to \$11/megawatt hour (MWh), depending on regional differences across the National Electricity Market.

Figure 5: Change in Average Residential Customer Bill from 2007–08 to 2017–18, National Electricity Market-Wide, Real \$2016–17, Excluding GST



Note: The percentages show each components' contribution to the total increase between 2007-08 and 2017-18.

Source: ACCC.¹⁶

The average wholesale price of electricity so far this year is around \$113/MWh.¹⁷ If gas prices reduced by \$5/GJ, average wholesale electricity prices would almost halve.

The effects of a fall in wholesale prices on retail electricity prices (the prices consumers actually pay¹⁸) would be to reduce them by 18%. In dollar terms, retail electricity bills would fall by \$270 per annum.

It is not just domestic consumers that would benefit. Industrial consumers of electricity are even more sensitive to changes to wholesale prices for electricity.

If gas prices could be reduced to \$5/GJ the effect on commercial and industrial (C&I) consumers of electricity would be to reduce their electricity bills by 27%.

An extra \$270 in every household's pocket would be well received.

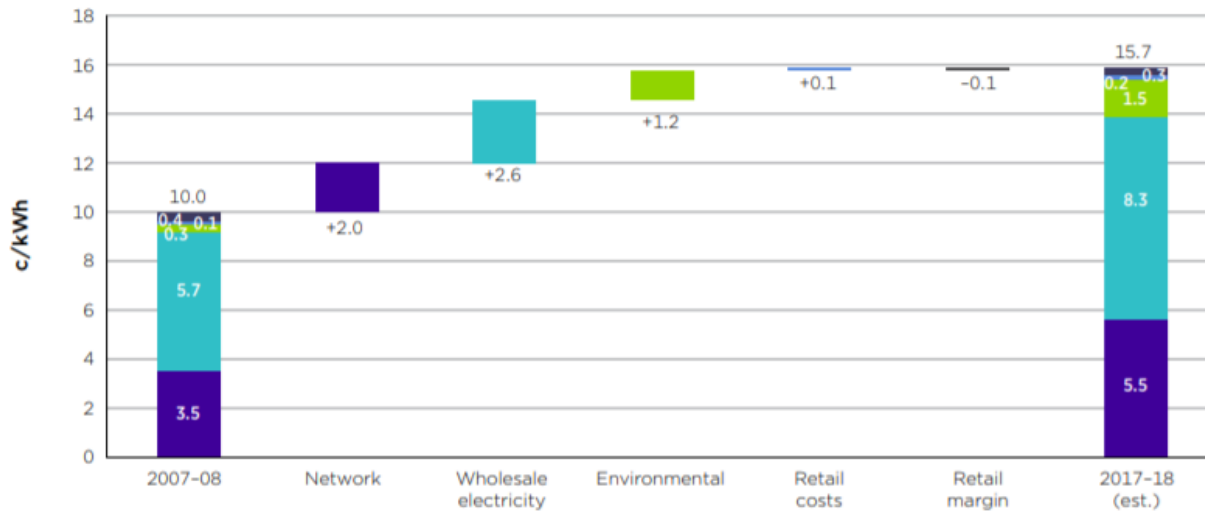
The positive flow-on economic effects of this on the broader economy have not been modelled. It does not take an economist to point out that an extra \$270 in every households' pocket would be well received and would result in increased consumption in the economy.

¹⁶ ACCC, [Restoring electricity affordability and Australia's competitive advantage](#) - ACCC Retail Electricity Pricing Inquiry—Final Report, Page v, June 2018.

¹⁷ [An Open Platform for National Electricity Market Data](#), 2019.

¹⁸ ACCC, [Restoring electricity affordability and Australia's competitive advantage](#) - ACCC Retail Electricity Pricing Inquiry—Final Report, Page v, June 2018.

Figure 6: Change in Average Commercial and Industrial (C&I) Customer Effective Prices (C/Kwh) from 2007–08, National Electricity Market (Nem)-Wide, Real \$2016–17, Excluding GST



Source: ACCC.¹⁹

Existing Regulatory Controls on Gas Do Exist, but Need to be Tightened

Australia essentially already has a domestic gas reservation policy - the Australian Domestic Gas Security Mechanism (ADGSM).

The ADGSM empowers Australia's Federal Energy Minister to impose LNG export restrictions in a 'domestic shortfall year'. That is, in a calendar year where the Minister has reasonable grounds to believe the export of LNG would contribute to a lack of supply of gas for Australian consumers, and there will not be a sufficient supply unless exports are controlled.

The problem with the market is not supply, it is price.

The trouble with this policy is that the Minister has never activated it.

There will never be a time when the east coast market is in actual shortfall, as the problem with the market is not supply, it is price. The east coast market is starved for gas by the cartel and prices are kept artificially high.

The only real solution to the east coast gas price problem is a domestic gas reserve policy that targets price.

¹⁹ ACCC, *Restoring electricity affordability and Australia's competitive advantage* - ACCC Retail Electricity Pricing Inquiry—Final Report, Page 32, June 2018.

The Case for a Domestic Gas Reserve

To implement a domestic gas reserve, we must ascertain what is a reasonable price for the Australian consumer to pay for gas.

The ACCC has urged us to benchmark our gas prices off one of the most expensive gas markets in the world, the Southeast Asian market. Furthermore, it has used spot prices and spot netback prices as guides for contract prices. However, contract prices are longer term arrangements and should not be benchmarked off short term gas prices.

To be globally competitive, we must look at our global competitors - the U.S. and Qatar, who along with Australia, are the three largest exporters of gas.

The U.S. is also a competitor for investment in downstream processing, as seen when Incitec decided to relocate from Australia to the U.S. for its new fertiliser factory.

A reasonable price for domestic gas in Australia would be \$5/GJ.

The U.S. is an efficient producer of gas that provides a starting point as to a reasonable price to pay for gas in Australia. Last year, the average gas price in the U.S. was A\$4.00/GJ.²⁰ The price for the first five months of 2019 in the U.S. was A\$3.81/GJ. Both prices were for gas delivered to a central hub, the Henry Hub in Louisiana.

These prices are slightly higher than the mid-point of the price Australian consumers paid for gas prior to 2014, of \$3-4/GJ.

The gas industry in Australia constantly states that prices had to rise due to the need for more investment in higher cost new sources of gas. There is some truth to that statement, however the current price is essentially triple the historic price for gas, and production costs simply have not risen to the same extent. The mid-point of the cost of production of the vast bulk of conventional gas is \$3.43, and for unconventional gas is \$5.03.

IEEFA considers that a reasonable price for domestic gas in Australia would be \$5/GJ. This is a substantial rise of 25-65% on historical prices of \$3-4/GJ. It would allow a healthy blended profit margin for gas companies. It would still be substantially above our global competitors in the U.S.

An A\$5/GJ price would allow domestic wholesale gas prices to halve for gas intensive industry and gas-powered generators, in turn lowering the wholesale price of electricity. The end result would be to allow energy intensive manufacturing to prosper in Australia.

²⁰ <https://www.eia.gov/dnav/ng/hist/rngwhhdA.htm>
<https://www.rba.gov.au/statistics/historical-data.html#exchange-rates>

Appendix: Major Australian LNG Export Capacity Expansions (Mtpa)

Project	State	Proponents	Capacity	Commission date
Australia Pacific LNG	Queensland	Origin (37.5%), ConocoPhillips (37.5%) & Sinopec (25%)	9.0	2015-16
Queensland Curtis LNG	Queensland	BG Group / Shell (75%) & CNOOC (25%)	8.5	2015-16
Gladstone LNG	Queensland	Santos 30%, PETRONAS 27.5%, Total 27.5% & KOGAS 15%	7.8	2015-16
Darwin	Northern Territory	Conocophillips (56.7%), Eni (12%), INPEX (10.5%), Santos (10.6%), TEPCO (6.7%) & Tokyo Gas (3.4%)	3.7	2006
Ichthys	Northern Territory	INPEX (66.2%), Total (26%), CPC Taiwan (2.6%), Kansai Electric Power (12%), Osaka Gas (1.2%), Tokyo Gas (1.6%), Toho Gas (0.4%) & JERA (0.7%).	8.9	2018-2019
North West Shelf	Western Australia	Woodside, BHP, BP, Chevron, Shell & MIMI Japan (a JV of Mitsubishi Corp. & Mitsui & Co.) (one-sixth each)	16.9	1989
Pluto	Western Australia	Woodside (90%), Kansai Electric (5%) & Tokyo Gas (5%)	4.9	2012
Gorgon	Western Australia	Chevron (47.3%), ExxonMobil (25%), Shell (25%), Osaka Gas (1.25%), Tokyo Gas (1%) & JERA (0.4%).	15.6	2016
Prelude floating LNG	Western Australia	Shell (67.5%), INPEX (17.5%), CPC Taiwan (5%) & KOGAS (10%)	3.6	2019
Wheatstone	Western Australia	Chevron (64%), Shell (6%), Woodside (13%), Kuwait (13%), PE (8%) & Kyushu Electric (2%)	8.9	2017-19
Total Australian LNG Capacity			87.8	

Source: IEEFA research and corporate reports.

About IEEFA

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Bruce Robertson has been an investment analyst, fund manager and professional investor for over 32 years. He has worked for major domestic and international institutions, including Perpetual Trustees, UBS, Nippon Life Insurance and BT. Bruce is an active participant in the national debate on energy issues in Australia and has been invited to present to a number of government enquiries into the electricity and gas industries.

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