

Too little too late

Gas in the COVID recovery

Despite the dreams of the Prime Minister and the COVID Commission there is no evidence to suggest the economic recovery was driven by gas.

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Introduction

Since the middle of 2020, the Australian economy has recovered strongly. By many measures the recovery to pre-COVID levels looks to be almost complete.

But have the gas and gas processing sectors had much to do with it?

An analysis of the data suggests the gas industry effectively made no contribution to the economic recovery, so far. In fact, if the rest of the Australian economy had performed as poorly as the gas sector, the recovery would be yet to begin.

Claims made by the Prime Minister and others that the Australian economy would emerge from the COVID pandemic on the back of a gas-led recovery appear to have paid little attention to the recent economic data, and doubled down in the recent Budget with an additional \$271 million in payments to the gas industry. Together with the \$600 million post-Budget commitment to the Kurri Kurri gas and diesel fired electricity generator, and the \$2 billion in refinery support, new gas (and refinery) industry assistance has increased a staggering \$2.9 billion over one and a bit weeks.

This paper presents analysis of the economic data over the period from pre-COVID in late 2019 to early 2021 to show there was no gas-led recovery.

The paper goes on to show there was also no recovery in the gas processing sector.

Then an analysis is undertaken to show how subsidies to encourage possible future, post recovery growth in the gas and/or gas processing industries would contribute little to future economic growth, and even less to future employment growth.

Then an analysis of what did drive the recovery from mid-2020 is undertaken, followed by a discussion of the additional gas industry support measures in the 2020-21 Budget, and finally a look at gas and energy sector policies that are more beneficial to Australians compared to gas sector subsidies.

Australia's COVID recovery

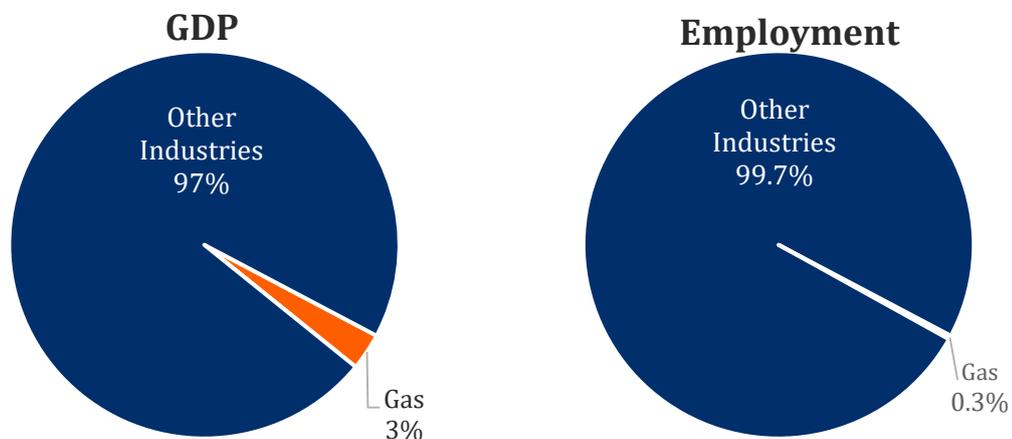
On many measures the Australian economy strongly recovered over the latter parts of 2020 and into 2021. Gross Domestic Product (GDP) for the December quarter of 2020 was only \$5.6 billion lower than the previous December and total employment at March 2021 was just above the pre-COVID peak of February 2020. In addition, household spending remains strong with retail sales up 2 per cent since March last year and house prices are once again on their upward climb.

The data suggests the recovery is well underway. Before analysing the contribution the gas industry made to the recovery, first, a brief look at the gas sector pre-COVID.

THE AUSTRALIAN GAS INDUSTRY

Pre-COVID the Australian gas industry directly contributed \$60 billion to GDP and employed around 42,000 people, representing just over 3 per cent of GDP and 0.3 per cent of employment (Figure 1).

Figure 1: Gas industry economic contribution, 2019



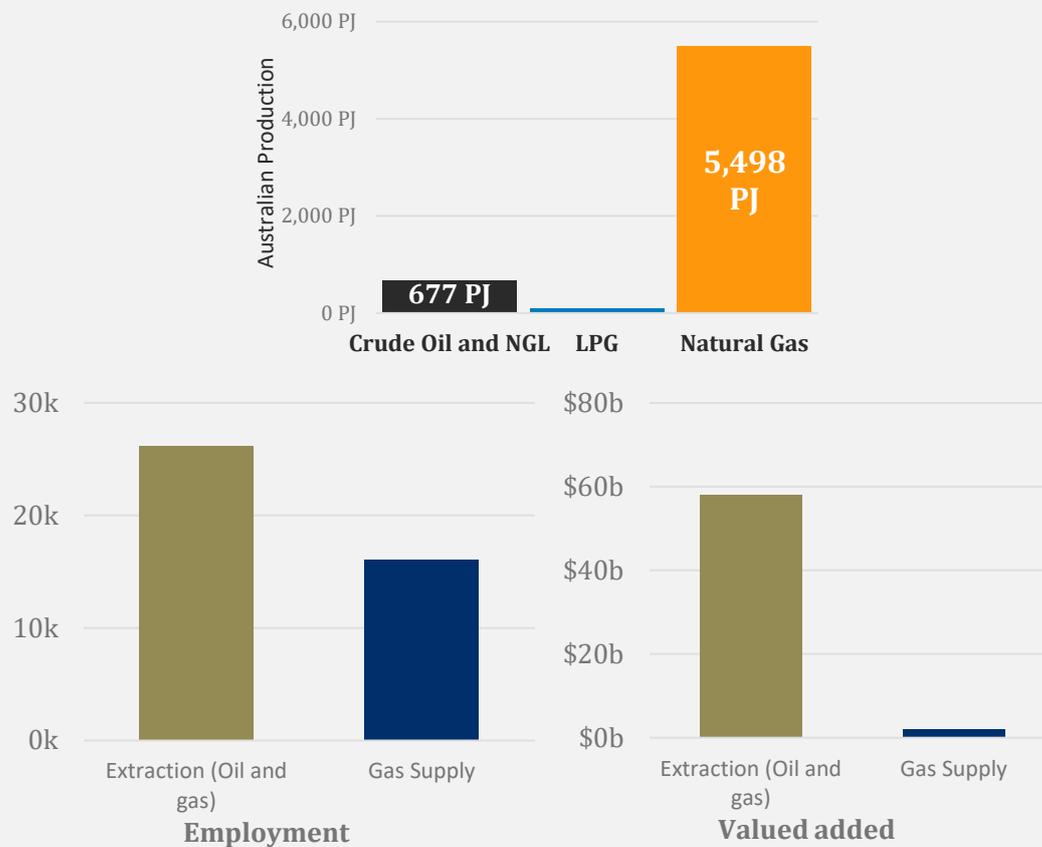
Source: ABS System of National Accounts and Labour Force Survey, various issues

On a value-added basis, at finest level of industry detail in the national accounts, the gas industry is Australia's 10th largest industry (out of 40). For employment, at the 2-digit ANZIC level, gas is ranked 55 out of 105 industries. For comparison purposes, for every person who works in gas there are 56 people who work in the health sector.

BOX 1 - WHAT IS THE GAS INDUSTRY?

For an industry supposedly so important to Australia's economic future, defining the "gas industry" in an analytical way can be tricky.

Natural gas is often extracted from the earth at the same time as oil and other liquids. The extraction of oil and gas in almost all ABS statistics is treated as a single industry. The Department of Industry, Science, Energy, and Resources produces some statistics distinguishing natural gas and oil production but not in a simple way that would allow the relative economic contribution of these sectors to be compared. The data does show, however, on a per unit of energy basis (in this case, in petajoules or PJ) that gas production is many magnitudes greater than oil and by a wide margin the larger part of the oil and gas extraction industry.



Once the gas leaves the oil and gas extraction industry it feeds into the gas supply industry. The ABS defines this industry much better. It covers everything gas does after extraction to just before ignition as fuel or use as a feedstock. The sector covers the networks of pipes and processing facilities used to get the gas to the end users.

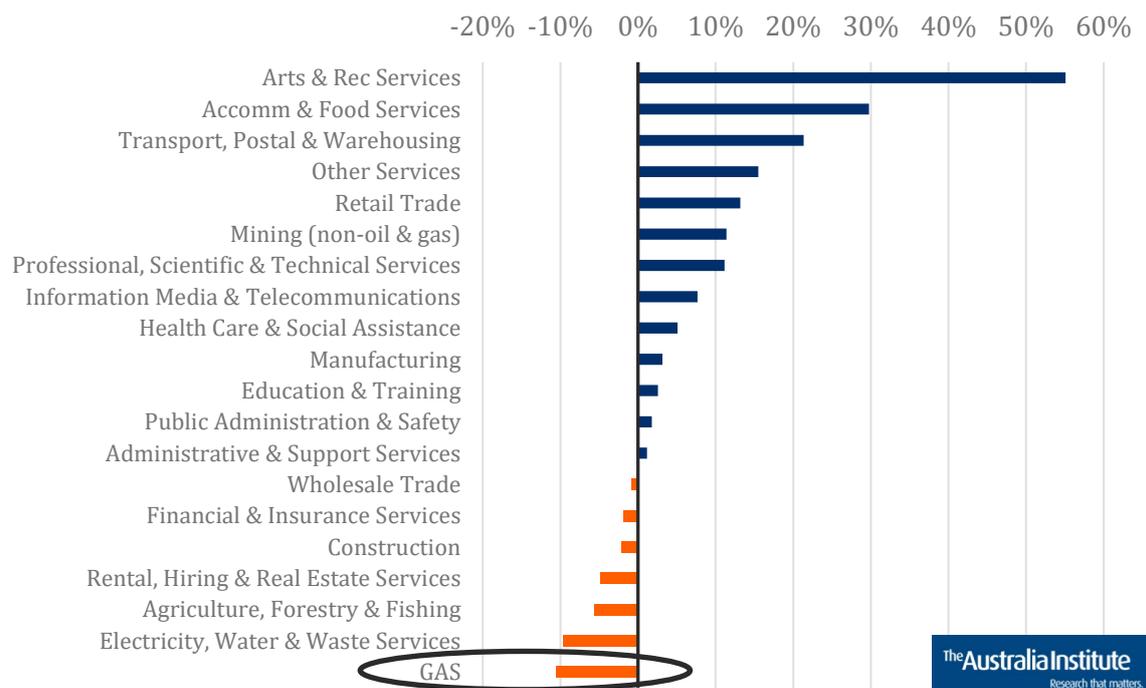
End users typically either burn the gas for heat (e.g. home heating and electricity generation) or use it as feedstock in parts of the chemicals industry.

For this paper, the Australian gas industry will be defined as the oil and gas extraction industry plus the gas supply industry. This is a reasonable assumption since gas extraction represents the significant majority share of the oil and gas extraction industry.

GAS IN THE COVID RECOVERY

Figure 2 shows the growth in employment by industry since May 2020. Over this period employment in the gas industry has fallen by 10.5 per cent, the largest fall in employment of any industry.

Figure 2: Growth in employment since May 2020



Source: ABS (2021) *Labour Force, Australia, Detailed, Feb 2021*

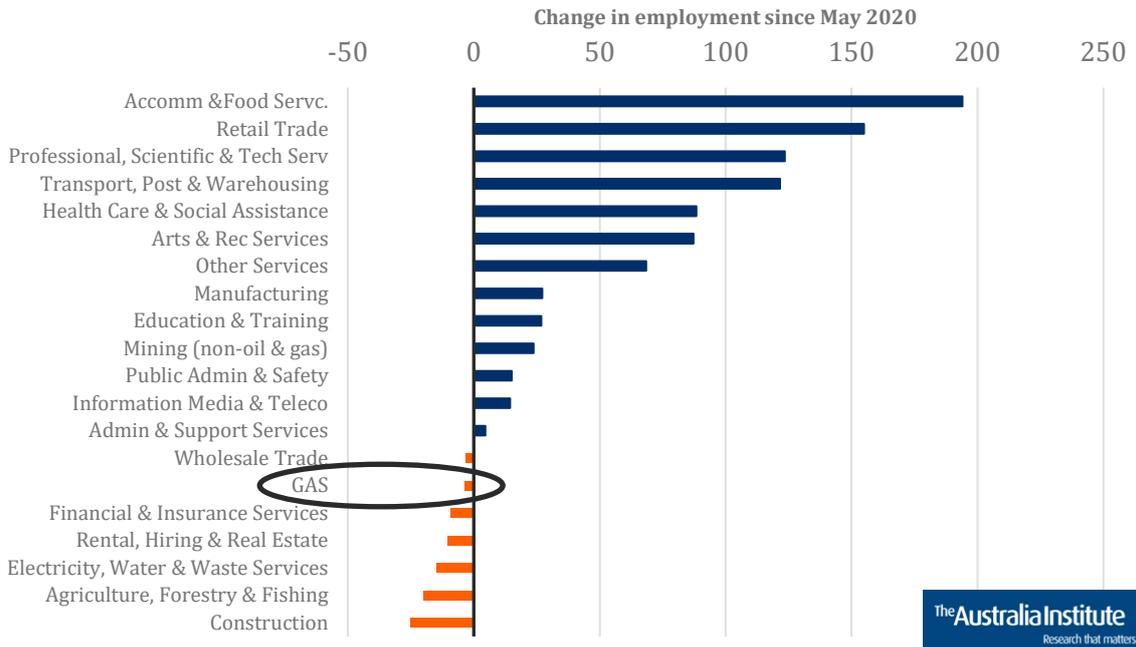
The gas industry is a relatively small part of the Australian economy such that it represents only 0.28 per cent of total employment. The number of jobs lost in the gas industry since May 2020 was only 3,800, offset by strong increases employment in many other industries (Figure 3 below).

Most of the recovery in employment has been in more labour-intensive industries including Retail Trade, Professional Services, and Health Care & Social Services.

Employment in Health Care and Social Assistance alone has grown in the last nine months by more than 2.7 times the size of the existing gas industry.

Put differently had economy-wide employment recovered as slowly as gas then total employment would have decreased by 1.3 million. A dire state and a long way from a post-COVID recovery.

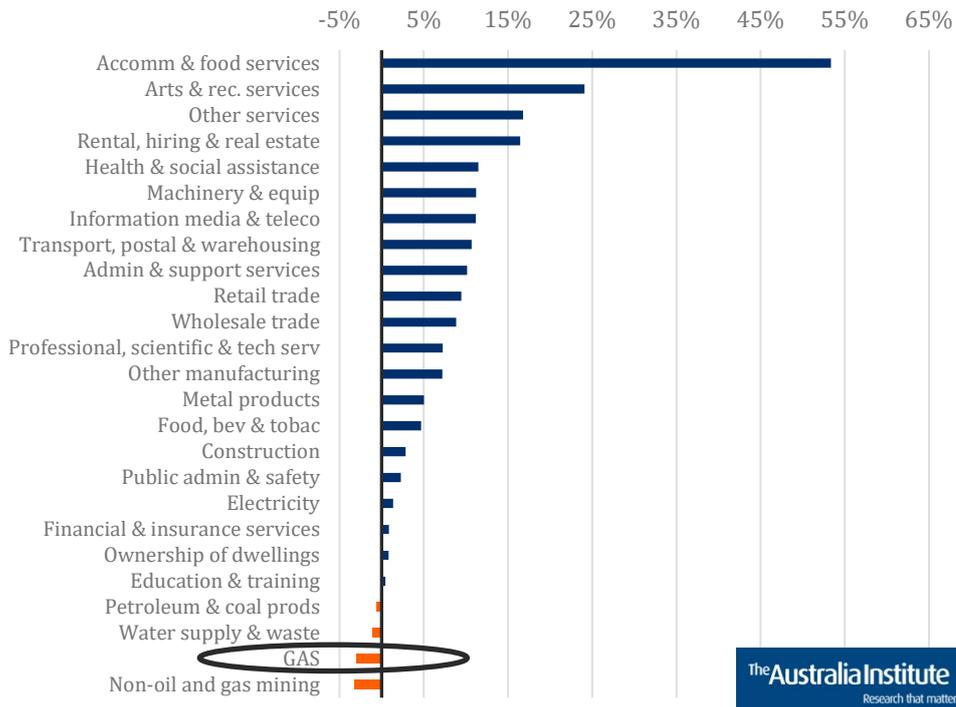
Figure 3: Contribution to the employment recovery (000's)



Source: ABS (2021) *Labour Force, Australia, Detailed, Feb 2021*

In terms of economic growth, the contribution of gas to the recovery is a similar story. Figure 4 shows the growth in value added (GDP) by industry since June 2020. While the March 2021 data is yet to be published the recovery is occurring in many places, just not in the gas industry.

Figure 4: Growth in value added by industry since June 2020



Source: ABS (2021) *Australian National Accounts: National Income, Expenditure and Product, Dec 2020*



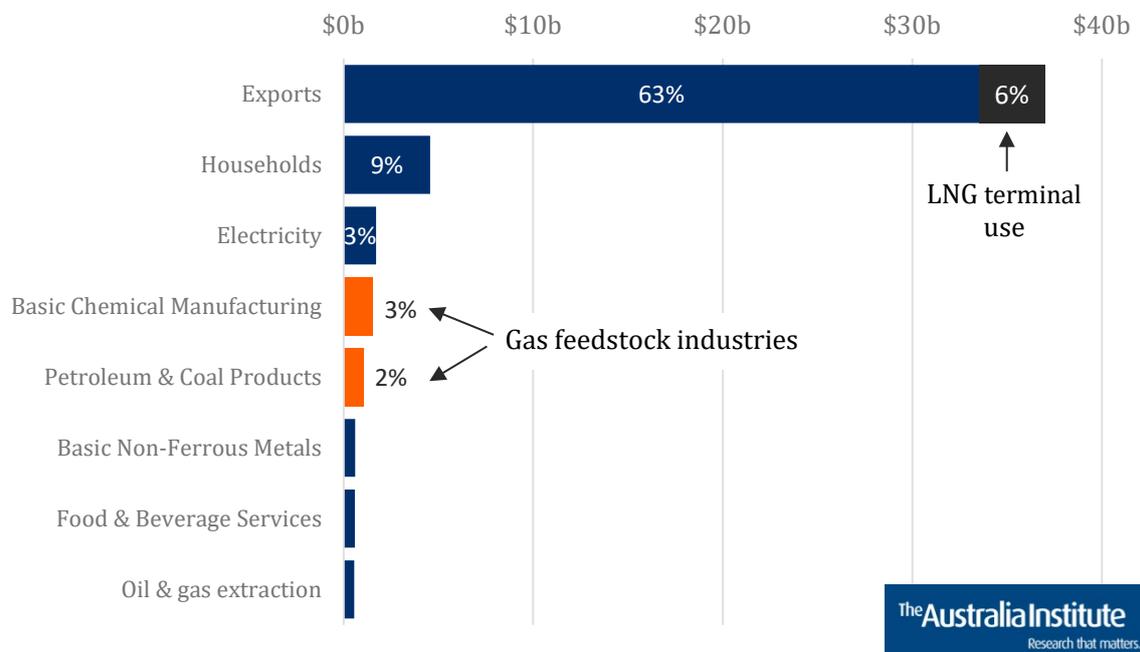
A GAS PROCESSING RECOVERY?

Once gas has been removed from the ground it is used in three main ways:

1. Exported as liquified natural gas (LNG);
2. Burnt to provide heat and/or electricity in various industries, and;
3. Used as a feedstock in a range of chemical industries known as the gas-processing industry.

Figure 5 shows how the vast majority of domestic gas production is directed towards exports, followed by household usage. Gas used as a feedstock represents an estimated 5 per cent of total usage.

Figure 5: Domestic gas usage, 2017/18 (\$ billion)



Source: ABS (2020) *Australian National Accounts: Input-Output Tables, 2017/18* and Department of Industry, Science, Energy and Resources (2020) *Australian Energy Update 2019*, Table F and Table N

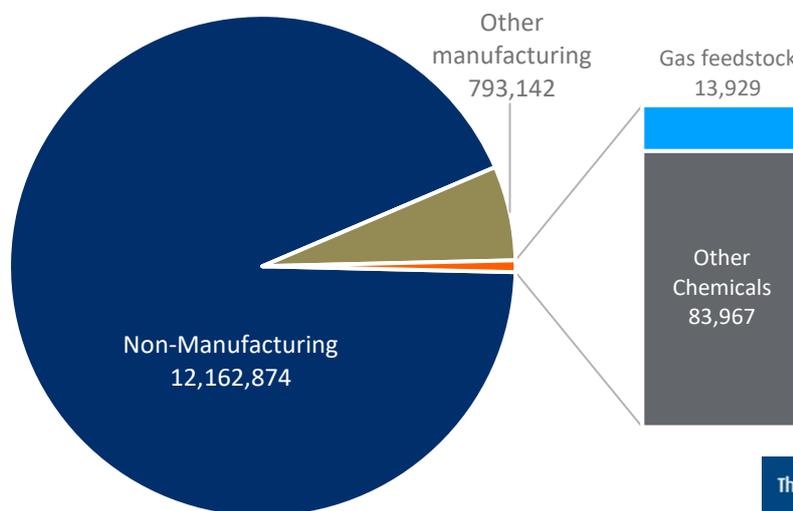
Interestingly, the estimated value of gas used at LNG terminals is greater than gas used as a feedstock.

The industries that use gas as a feedstock represents one part of the chemicals industry, which is one part of the larger manufacturing sector. As outlined Figure 6, using a methodology similar to that used by ACIL Allen,¹ the gas processing industry

¹ ACIL Allen (2019) *Chemical Industry Economic Contribution Analysis – Report to Chemistry Australia*, https://acilallen.com.au/uploads/projects/168/ACILAllen_ChemicalIndustry2019-1565671864.pdf

employs, at a stretch, 14,000 of the estimated 84,000 workers in the chemicals industry. The gas feedstock industry represents 1.6 per cent of all manufacturing jobs and 0.1 per cent of total Australian employment.

Figure 6: Employment in chemical and gas processing industries, February 2020



Source: ABS (2020) *Labour Force, Australia, Detailed, Feb 2020*

Considering the Australian economy lost 862,000 jobs between February and May of 2020, a gas processing industry led recovery would need to increase its current employment levels fivefold just to contribute 10 per cent to the recovery effort.

Instead, between May 2020 and February 2021 the employment in the chemicals increased only 11.8 per cent, and employment in the gas processing industries fell around an estimated 13 per cent.

In short, the gas processing industry is a small part of a small manufacturing sector. It is a small user of gas and beyond the realm of mathematical possibility that it could contribute significantly to any recovery effort. But fundamentally, the industry experienced falling employment in the current recovery.

A LONGER-TERM GAS RECOVERY

Perhaps what the Prime Minister and others meant by a gas-led recovery was some post-recovery extra boost to economic growth.

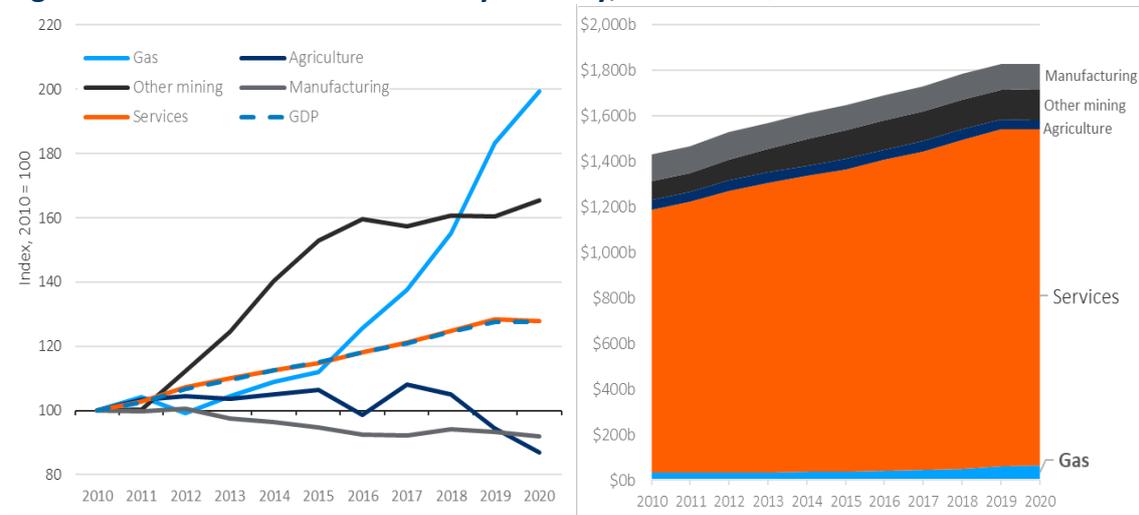
This too looks doubtful.

Whilst the last 20 years has seen remarkable growth in the gas industry more recent trends are much flatter. In addition, long leads times for new projects in the gas industry suggest any new gas-led economic growth man be many years off.

Longer term trends

Over time, the gas industry has shown some exceptional growth, especially over the last five years, with most new output directed towards LNG exports (Figure 7).

Figure 7: Growth in valued added by industry, index and \$ billion



Source: ABS (2020) *Australian System of National Accounts, 2019-20*

However, that growth only represents a small increase in its contribution to overall economic activity, from 2.1 per cent of GDP in 2014 to 3.1 per cent in 2019 before the arrival of COVID.

The contribution to employment from gas is many times smaller, increasing from 0.22 per cent of total employment in 2010 to a peak of 0.37 per cent in 2015 and back down to 0.25 per cent by February 2021, underlining the capital-intensive nature of the industry, and the predominance of profits over employment.

The relative size of the gas industry in terms of employment and value added means any soon-to-arrive boost in gas growth will do little for overall employment growth yet deliver significantly more for profit. For every \$1,000 dollars of future gas growth \$580 will be paid out in profits while only \$76 will provide wages and salaries. Only four other industries (out of the 114 industries in the ABS input-output tables) pay out a

lower share of revenue as wages. In other words, it is hard to find industries that do a worse job of creating jobs.

In addition to the lack of jobs growth associated with the gas industry, the historical employment patterns are highly volatile. The relative volatility of employment in the gas sector is, on average, three times higher compared to average of all other industries (at the ANZIC 1-digit level). So, not only does the gas industry employ relatively few people, the jobs do not last.

Finally, to add some context, if somehow the Australian economy grew 4 per cent a year for the next five years (an overall 22 per cent expansion in the size of the economy) and the gas industry grew at three times that annual rate (12 per cent a year for an overall expansion of 78 per cent), then it would have contributed only 3 percentage points to the overall growth profile.

The gas sector is simply too small to be the sole reason for any future growth story. Future growth requires co-ordinated policies, or good luck, across a range of industries.

Long lead times, planning and approvals

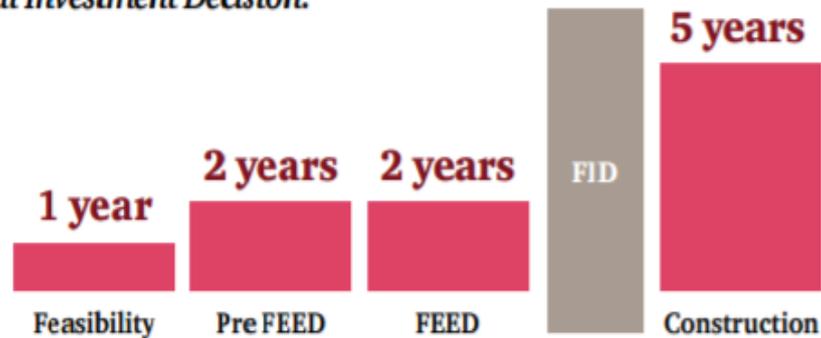
Equally important to any future gas growth story are the long lead times it would take to happen. The gas industry is highly capital intensive with long planning and build times; it also requires many environmental and regulatory approvals before construction can start.

A report by PricewaterhouseCoopers (PWC) on the Canadian gas industry suggests it is not unusual for 10 years to elapse between the inception of an LNG gas project and its first gas delivery.² The report suggests that it takes five years before the final investment decision is made.

² PWC (2014) *The progression of an LNG project - Canadian LNG Projects*, www.pwc.com/gx/en/mining/publications/assets/pwc-lng-progression-canada.pdf

Figure 8: Lead time in gas projects

The elapsed time is roughly equally split between pre- and post-Final Investment Decision:



Source: PWC (2014) *The progression of an LNG project - Canadian LNG Projects*, www.pwc.com/gx/en/mining/publications/assets/pwc-lng-progression-canada.pdf

Even at half these rates, a natural gas project envisaged at the height of the COVID pandemic could be Australia's economic saviour some time in 2025, but more likely in 2030.

For a more Australian example, the proposed 820 km gas pipeline from Queensland's gas hub at Wallumbilla to near Newcastle and touted as part of the gas recovery was still in the 'seeking approval' stage in third quarter of 2020.³ The project was first proposed in 2009.⁴

For Australia more broadly, Global Energy Monitor finds that 8,500 km of gas pipelines were in the pre-construction phase in 2020 compared to just 79 km under construction.⁵ When it comes to the pipelines, the gas recovery looks some way off.

The lumpiness of the capital expenditure patterns in the gas industry implies a less than nimble industry unable to quickly change course to provide the economic shock-absorber services needed in times of crisis.

³ Macdonald-Smith (2020) *Hunter Gas Pipeline angles for government backing*, <https://www.afr.com/companies/energy/hunter-gas-pipeline-angles-for-government-backing-20200828-p55qe1>

⁴ Global Energy Monitor Wiki (2021) *Queensland Hunter Gas Pipeline*, https://www.gem.wiki/Queensland_Hunter_Gas_Pipeline

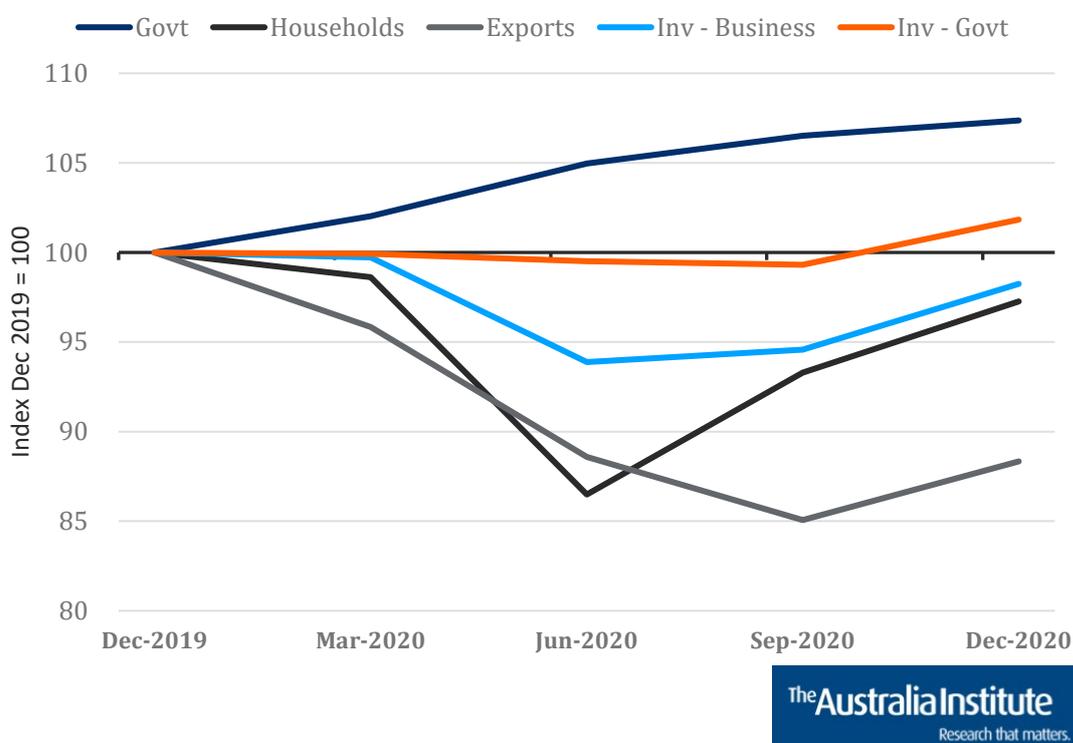
⁵ Browning, Aitken, Plante and Nace (2021) *Pipeline bubble 2021*, p 9

DRIVERS OF THE RECOVERY?

If the gas and gas processing industries were not drivers of the recovery in the second half of 2020 and into 2021, what was?

Figure 9 shows the growth in GDP by sector: household spending, government spending, investment (business and government), and exports. Since the December 2019 quarter, government spending (recurrent and investment) has shown the most stability and strongest growth over the COVID period.

Figure 9: Growth in GDP by sector



Source: ABS (2021) *Australian National Accounts: National Income, Expenditure and Product, Dec 2020*

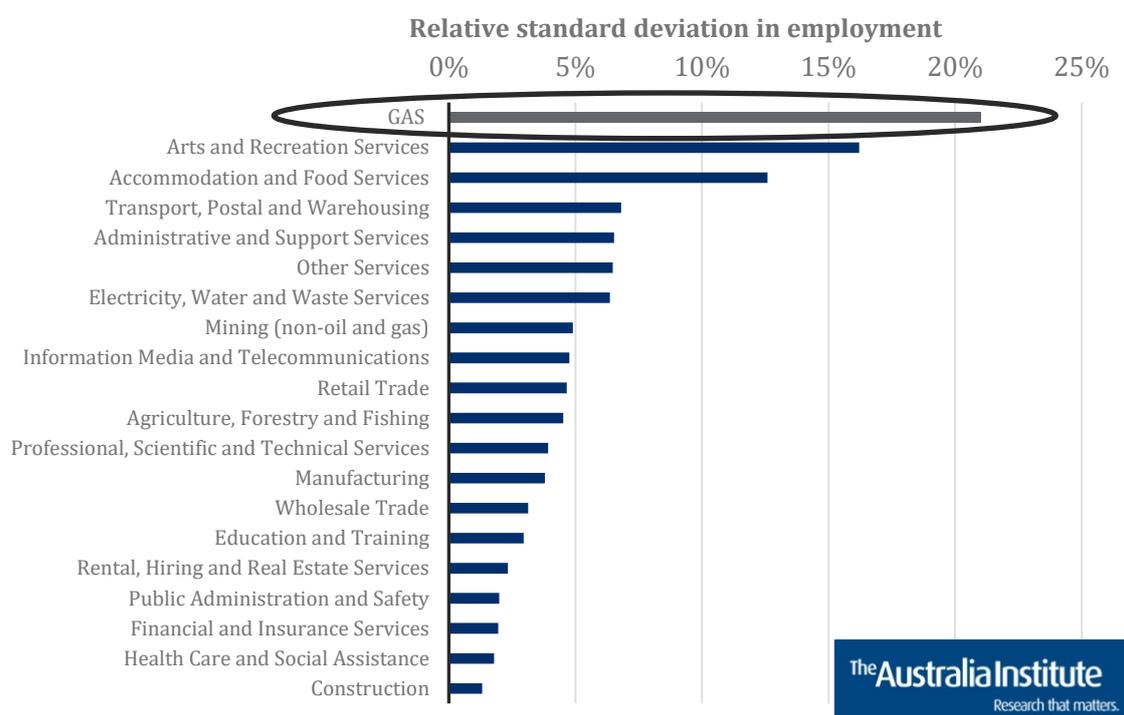
Note: Indexed so that December 2019 equals 100 for each sector.

On the employment side, the recovery was seen in many sectors. As shown many pages back in Figure 2, the recovery took place across a range of labour-intensive industries. To be fair, it is not too surprising that the industries that experienced the biggest declines bounced back strongly at such as retail, accommodation and food services, and arts and recreation.

But what is also worth considering is the relative volatility of employment across industries. Sectors that maintained relatively stable employment throughout 2020 helped to dampen the economic slowdown.

Unsurprisingly, industries with lowest relative volatility in employment were those associated with public sector spending, including Public Administration and Safety, Education and Training, and, Health Care and Social Assistance. The construction industry showed the lowest volatility of employment over the course of the year, with that industry remaining operational throughout the worst of Victoria’s lockdown.

Figure 10: Volatility in employment, November 2019 to February 2020



Source: ABS (2021) *Labour Force, Australia, Detailed, Feb 2021*

The industry with the highest relative standard deviation in employment was the gas industry.

In summary, the recovery pattern, especially in employment, shows that it was, and is, broad based with little chance of any single industry, large or small, being the sole contributor to the economic recovery.

BUDGET 2021-22 AND THE DAYS AFTER

Budget 2021–22 appears to pay little attention to the recent economic data and adds an extra \$270 million to gas industry support over the period to 2024–25, of which an estimated \$102 million is earmarked for 2021–22 (Table 1).

Table 1: New gas industry expenditure, Budget 2021–22, \$ million

	2021–22	2022–23	2023–24	2024–25
JobMaker Plan — Gas Fired recovery	\$16	\$9	\$2	\$0
Improving Energy Afford. & Reliability	\$27	\$27	\$0	\$0
Strategic Basin Plans	\$16	\$0	\$0	\$0
NT Infrastructure Investment*	\$43	\$43	\$43	\$43
Total	\$102	\$80	\$45	\$44

Source: Analysis of Australian Government (2021) *Budget 2021-22, Budget Paper 2*

Note: Northern Territory Infrastructure Investment (Gas Industry Roads Upgrades) assumed to be divided equally across the 4 years.

These payments are on top of the expenditures announced in the previous Budget under the *JobMaker Plan — Gas Fired Recovery*, and *Strategic Basin Plans* policies. The new expenditure represents additional payments under these two policies, as well as payments under the *Improving Energy Affordability and Reliability*, and *Infrastructure Investment — Northern Territory* policies.

And, with the ink barely dry on the budget papers the government announced on 18 May 2021 its commitment to the building the 660 megawatt Kurri Kurri gas and diesel fired power station at a cost of \$600 million.⁶

Add on top the \$2 billion of subsidies for the oil refineries (details announced 17 May)⁷ and the government has now committed \$2.9 billion to the gas (and some oil) fired non-recovery (Table 2). For a sector that was a drag on growth during the early stages of the COVID economic recovery that is some deal.

Table 2: Total new government support for gas and refining industries

Total \$m

⁶ Gooley (2021) *Federal government will spend \$600 million on new Kurri Kurri gas plant in the NSW Hunter Valley*, <https://www.abc.net.au/news/2021-05-18/federal-government-commits-600m-for-kurri-kurri-gas-plant/100147956>

⁷ Taylor (2021) *Locking in Australia's fuel security*, <https://www.minister.industry.gov.au/ministers/taylor/media-releases/locking-australias-fuel-security/>

JobMaker Plan — Gas Fired recovery	\$27
Improving Energy Affordability & Reliability	\$55
Strategic Basin Plans	\$16
NT Infrastructure (Gas Industry Roads Upgrades)	\$174
Kurri Kurri Gas-fired Power Station	\$600
Oil Refinery Assistance (Maximum)	\$2,047
Total Gas (and Oil) Industry Assistance	\$2,918

Source: Analysis of Australian Government (2021) *Budget 2021-22, Budget Paper 2*; and related subsequent press releases.

For comparison purposes an analysis of the 2017–18 Input-Output table of the Australian economy suggests a \$2.9 billion spend in the health and education sector could create 19,604 direct jobs, and around 15,00 female jobs. In the gas industry the same increase in output would create only 1,826 jobs, 80 per cent male (Table 3), suggesting once again if the purpose of the additional support is jobs and growth the value for money is extremely low.

Table 3: Employment associated with \$2.9 billion increase in output

	Output, \$b	Employment	Females	Males
Health and Education	\$2.9	19,604	14,630	4,974
Gas Industry*	\$2.9	1,826	366	1,460

Source: Analysis of ABS (2020) *Australian National Accounts: Input-Output Tables, 2017/18*

Note: “Gas Industry” is the Oil and Gas Extraction industry plus the Gas Supply industry.

GAS AND ENERGY SECTOR POLICIES THAT DO MATTER

Despite the inability of the gas sector to be the sole focus of any recovery it remains a source of energy and feedstock and price movements can affect households and industries. In addition, the industry is major source of carbon emissions. As such, the industry remains an important one from a policy perspective.

Previous work by The Australia Institute highlights some of the policies that could be applied to the gas sector and related energy sectors that would lower domestic energy and gas prices and reduce emissions.⁸ These include:

- Caps on additional LNG exports/east coast domestic gas reservation. A cap on LNG exports allows additional gas savings to be passed on as lower domestic gas

⁸ Swann and Ogge (2020) *On the make - Gas and manufacturing in Australia*, <https://australiainstitute.org.au/report/on-the-make/>; Ogge (2021) *Wrong way, go back*, <https://australiainstitute.org.au/report/wrong-way-go-back/>

prices. A domestic gas reservation, a common feature in many gas-producing regions, including Western Australia, would set aside a portion of current economic reserves for domestic use.

- Encourage households to switch away from gas heating to cheaper electric heat pump solutions. Natural gas is a relative expensive way to provide household heating creating a seasonal peak in demand, particularly in Victoria. Policies to encourage households to switch to cheaper heat-pump based systems (reverse cycle air conditioning) will lower seasonal demand freeing up gas for industrial use, and lower energy prices for households. A sensible place to start could be a ban on new gas connections to newly constructed residential buildings, as recently suggested by the City of Yarra.⁹ The UK government enacted a similar policy and New Zealand is looking to do the same.¹⁰
- Promote industrial heat pumps for heat generation in industry. Whilst the up-front costs can be sizeable, industrial scale heat pumps have lower operating costs compared to gas. Policies, or subsidies, to encourage the take-up of these technologies should be promoted.
- Policies to accelerate the switch to cheaper and renewable forms of electricity generation. A carbon price, a new/higher renewable energy target are all relatively simple and well discussed policy options.

⁹ Cowie and O'Malley (2021) Push to turn off gas to help reach state's climate goal, <https://www.theage.com.au/national/victoria/push-to-turn-off-gas-to-help-reach-state-s-climate-goal-20210504-p57oof.html>

¹⁰ The Age (2021) *Turning off the gas makes good sense*, <https://www.theage.com.au/national/victoria/turning-off-the-gas-makes-good-sense-20210505-p57p1n.html>

Conclusion

An analysis of the economic data from 2019 to 2021 shows there has been no gas-led recovery. A sector the size of gas and its related gas processing industry could never feasibly, alone, drive a recovery.

The economic recovery was broad-based.

Any additional economic recovery driven by gas is likely to be at least five years off, and would add relatively little to overall employment and economic growth.

Gas and broader energy sector policies designed to drive down energy and electricity costs would likely deliver much broader and wider economic benefits.

The reality is, 20 years ago there was a big role for gas as a transition fuel, if we had switched from coal to gas decades ago then emissions would have been lower. But it's too late. Gas missed the bus. Australia needs to roll out renewables and storage as fast as it can. Anything else is a dangerous and expensive distraction.

Yes, gas will play a role in Australia for decades to come, so will coal and so will photographic film. But that role will be rapidly declining.