appea the voice of australia's oil and gas industry

Submission
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Senate Economics References Committee

Inquiry into Australia's Manufacturing Industry

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INTRODUCTION

The Australian Petroleum Production & Exploration Association (APPEA) is the peak national body representing upstream oil and gas explorers and producers active in Australia. APPEA's member companies account for around 95 per cent of Australia's petroleum production. Further information about APPEA can be found on our website, at www.appea.com.au.

APPEA welcomes the opportunity to provide comment to the *Senate Economics References Committee's Inquiry into the Australian Manufacturing Industry.* The production of oil and gas is itself a high technology, value adding manufacturing activity that has a bright and growing future. Liquefied natural gas (LNG) processing, production and export is one of Australia's largest manufacturing sub-sectors and an Australian manufacturing success story.

In addition, oil and natural gas play a critical role in manufacturing Australian-made goods and there is an immense opportunity for a growing oil and gas sector to further support a vibrant and expanding Australian manufacturing industry.

OIL AND NATURAL GAS IN OUR ECONOMY

Australia has abundant supplies of natural gas, both offshore and onshore and it is a vital part of our everyday lives, from cooking and heating to being an essential raw ingredient in manufacturing Australian-made goods.

Natural gas is a highly flexible fuel with a diverse range of uses:

- Natural gas is commonly used to generate electricity, heat and steam for industries, including alumina refining and food and beverage manufacturing.
- Natural gas is also a critical feedstock for industry that often cannot be substituted in producing fertilisers, cleaners, polymers and refrigerants.
- Natural gas is ideally suited as a complement to renewable electricity generation because gas generation plants can be rapidly turned on and off to respond to changes in intermittent generation from renewable sources.
- Natural gas is the fuel of choice for technologies that can provide a combined system electricity, heating and cooling at very high thermal efficiencies approaching 80 per cent.
- Compressed natural gas and LNG are used in the transport sector, and this use can be expanded.
- Innovative technologies, such as natural gas fuel cells, have been developed that can provide electricity and heat requirements in applications ranging from a small house to a medium-sized office or factory. These technologies can deliver thermal efficiencies as high as 85 per cent.12
- Natural gas can provide a fuel source for hydrogen made through the process of steam methane reforming (SMR), with any greenhouse gas emissions generated during SMR managed through market offset or technical abatement (such as carbon capture and storage) to offer a carbon-neutral product.
- Demand for energy as part of the industrialisation of Asian economies and properties of natural gas as a lower emitting and cleaner burning fuel is driving sustained international demand for Australia's LNG exports.

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Australia's oil and gas industry is a key and ongoing contributor to the Australian economy. The industry:

- Invested an estimated $473 billion in the Australian economy, including around $305 billion invested in Australian LNG projects, since 2010[1] (Wood Mackenzie *Australian Oil and Gas Industry Outlook Report*). This investment will deliver returns for Australia for decades to come, through increased gas supply for Australian customers, export revenue, jobs, royalties and taxes.
- Supports 80,000 jobs directly and indirectly in Australia and hundreds of thousands more in the manufacturing sector rely upon natural gas.
- Supports a vast supply chain of businesses including in manufacturing, services and construction.
    - This is in addition to the hundreds of thousands of jobs in electricity generation, manufacturing, transport and other industries which rely on our outputs.
    - Businesses ranging from national firms to local cafés all share in the economic benefits generated by the oil and gas industry[2].

[1] See Wood Mackenzie (2020), *Australian Oil and Gas Industry Outlook Report*, page 4 (available at appea.com.au/wp-content/uploads/2020/06/Australia-Oil-and-Gas-Industry-Outlook-Report.pdf).
[2] As an example, work for APPEA by Lawrence Consulting, released in 2019, found the natural gas industry contributed around $55 billion to Queensland's economy over a seven-year period. Almost $5 billion was spent on wages state-wide during the period with the industry employing around 4,600 full-time employees, according to the *Economic Impact of Queensland's Petroleum and Gas Sector 2011-18* report. The industry spent around $50 billion on goods and services from local community contributions and payments to local government as well as royalties, stamp duty and tax, the report found. See www.appea.com.au/all_news/natural-gas-powering-queenslands-economy for more information.

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NATURAL GAS IN MANUFACTURING

Natural gas is both a source of energy and an essential raw material for the manufacturing of everyday products like glass, ceramics, bricks, cement, plastic packaging for food and beverages, fertilisers, anti-freeze, metals like aluminium, copper, zinc, tin and in processes of food preparation, fermentation and brewing. In most cases, there is no substitute for gas.

Almost one-third of the gas consumed in Australia is used by manufacturers. Gas is second only to oil as an energy source for manufacturing.

About 225,000 people work in manufacturing sectors that rely heavily on gas; another 500,000 people work in related industries that do business with these manufacturers.

Gas is essential for many industrial processes — without gas to fire kilns and furnaces, it would be impossible to make products such as glass, bricks, paper, cement, steel and alumina. For example, steel is galvanised with hot molten zinc to create a non-corrosive layer. No alternative fuel can maintain the necessary high temperatures.

Alumina refineries use gas for power generation and for refining bauxite to produce alumina, which is used to produce aluminium. Alumina refining requires temperatures greater than 1,100°C. Gas is the only fuel that can achieve this temperature. Alcoa uses 95 petajoules (PJ) of gas each year in its three alumina refineries in Western Australia. To put this use of natural gas into perspective, a joule is a measure of thermal energy – one petajoule is 1015 joules (1 million billion).

Gas is also used to produce **ammonia**, which is an important feedstock for making the urea that goes into fertilisers. Producing each tonne of urea requires 21GJ of natural gas — the same amount of gas that the average NSW household uses in a year. Australian industries use 1.6 million tonnes of urea each year.

Ammonia is also used to make explosives and cleaning products, and in fermentation, brewing and winemaking.

Plastics are made from ethane, which is derived from natural gas. At 850°C, steam is added to ethane to break it into ethylene. This is then used to make plastics. These are used in food packaging and wrapping, plumbing and guttering, fibres and textiles, machine parts and many other applications.

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Today, and into the future, demand for natural gas will continue across industries and manufacturing.

OIL AND GAS INDUSTRY'S COMMITMENT TO DOMESTIC CUSTOMERS

Australia's oil and gas industry is fully committed to ensuring there is a secure, sustainable and competitive natural gas supply for households and businesses – and the sector takes its obligations to the domestic gas market very seriously.

The industry has always delivered plentiful supplies of gas to the domestic market. There have been 108 agreements to supply gas to industrial and domestic customers signed since December 2012. In addition, the Australian Competition and Consumer Commission (ACCC) in its ten interim Gas Inquiry reports has consistently noted that LNG exporters have made significant amounts of gas available to the domestic market.

The gas industry has already announced billions of dollars in new investment in recent years, to bring more gas into the market, supporting both domestic gas consumption and the LNG export projects that are underpinning much of Australia's economic growth. For example, in the past few years, there have been announcements from companies including Arrow Energy, APLNG, Beach Energy, BHP, Cooper Energy, Esso Australia, GLNG, Origin Energy, QCLNG, Santos, Senex Energy, Shell Australia, Strike Energy and Westside Corporation to provide new supply in various parts of eastern Australia gas market.

An updated Heads of Agreement (HoA) with the three east coast LNG suppliers announced on 21 January 2021 again demonstrated the industry's commitment to local markets. It provides further assurance that the industry will always deliver gas to the domestic market where required and at internationally competitive prices.

Most recently, as the ACCC reported[3] in its *Gas inquiry August 2021 interim report*, domestic gas prices have remained low through 2020 and into 2021, due largely to new supply entering the market and LNG projects making more gas available to the domestic market.

The ACCC finds, as it did in its previous reports, that producers – particularly LNG producers – have made significant volumes of additional gas available to the local market.

UNLOCKING GAS RESOURCES IS THE SOLUTION TO FUTURE GAS FOR INDUSTRY

Meeting natural gas demand in years to come will require ongoing industry investment in commercialising existing reserves and resources and finding new sources of supply.

The most effective solution for ensuring there is adequate gas supply is to maintain an open and competitive market and remove unnecessary government restrictions on exploration and development. This is key to boosting supply and supporting Australia's manufacturing industry by allowing more gas field development closer to industrial centres.

For instance, the needs of Victorian manufacturers are served better by supplying them with Victorian gas that is close to their operating facilities. Likewise New South Wales manufacturers need New South Wales gas. The alternative - importing gas from other states to meet the needs of manufacturers in Victoria and New South Wales - is not the answer.

As the ACCC has previously highlighted, shipping gas from Queensland to southern customers adds $2 to $4 in transport costs, which adds directly to the final price for gas delivered to a customer. For example, if the final price was $10/GJ then transport costs would account for between 20% and 40% of that price.

According to the Victorian Gas Program's Progress Report No.4 (2020) there could be between 128-830 PJ of commercially feasible gas that is yet to be discovered in that state alone – this is enough gas to supply hundreds of thousands of Victorian homes, businesses and industries with natural gas for the next century.

The way to support Australia's manufacturing industry is to improve energy security with more supply and gas suppliers.

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[3] ACCC (2021), *Gas inquiry July 2021 interim report*. See also www.appea.com.au/all_news/media-release-accc-report-confirms-more-supply-and-lower-prices.

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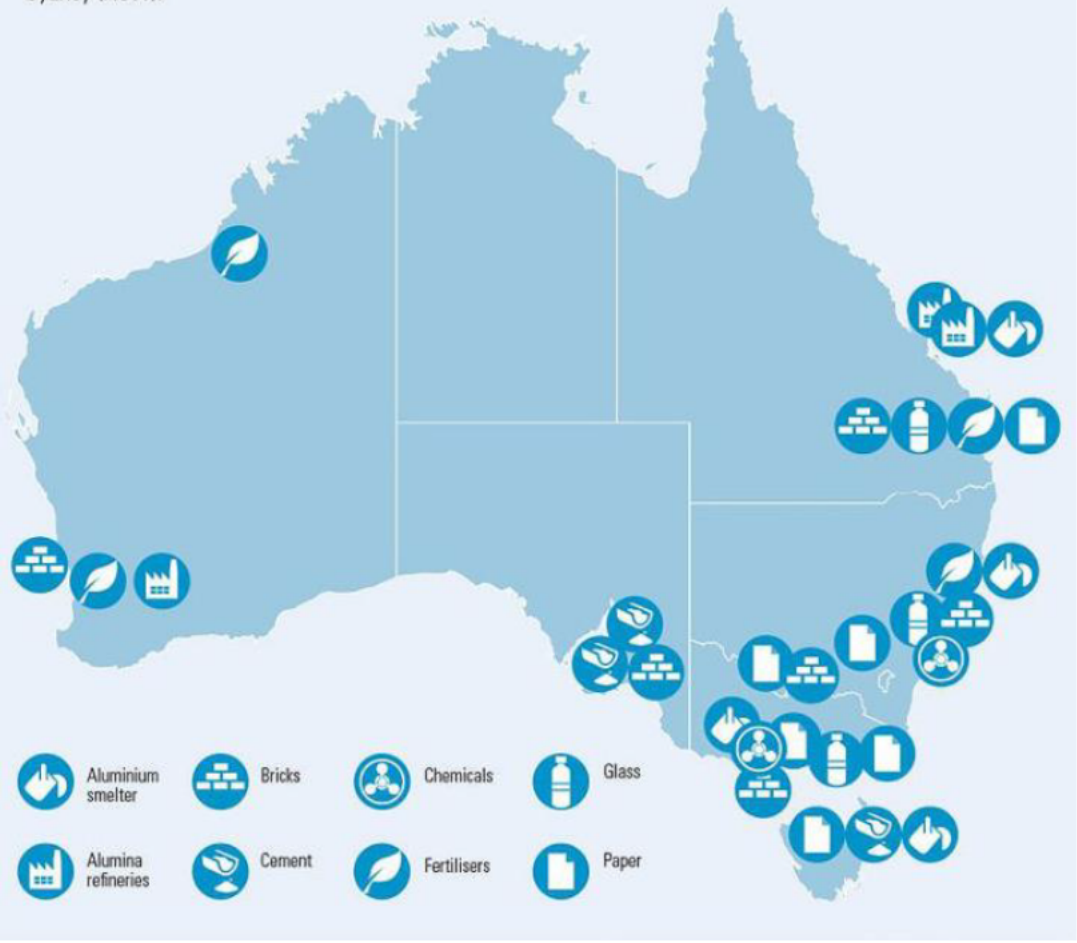
Gas—fuelling manufacturing across industries and across Australia

Manufacturing clusters dependent on gas are found in all Australian states:

- **Fertilisers**—Brisbane (Qld); Kwinana and Pilbara (WA); and Kooragang (NSW).
- **Chemicals**—Altona (Vic) and Botany (NSW).
- **Paper**—Brisbane (Qld); Tumut and Albury (NSW); Maryvale, Coolaroo and Campbellfield (Vic); and Boyer (Tas).
- **Glass**—Melbourne (Vic); Eagle Farm (Qld); and Sydney (NSW).
- **Bricks**—Perth (WA); Albury, Cecil Park and Schofields (NSW); Thomastown and Scoresby (Vic); Darra and Oxley (Qld); and Golden Grove (SA).
- **Cement**—Angaston and Birkenhead (SA).
- **Alumina refineries**—Peel region and Kwinana (WA); and Gladstone and Yarwun (Qld).
- **Aluminium smelters**—Boyne Island (Qld); Tomago (NSW); Portland (Vic); and Bell Bay (Tas).



LNG PRODUCTION IS AUSTRALIA'S LARGEST MANUFACTURING SUBSECTOR

The production of oil and gas is itself an innovative, high technology, value adding manufacturing activity that has a bright and growing future. LNG processing and production is an Australian success story, one Australia's largest manufacturing sub-sector and the industry has a bright future. According to the Australian Government, the value of LNG exports has increased more than six-fold over the last decade, totalling $47.5 billion in 2019-20.

As of October 2020, the Australian oil and gas industry had around $137 billion worth of potential projects in the investment pipeline at different stages of development.

The International Energy Agency (IEA) in its *World Energy Outlook Report 2020* expects that by 2040 global natural gas demand will increase by 29%, accounting for a quarter of global energy demand. That figure is 52% in Asia, representing a massive opportunity for Australia.

Processing and exporting gas as LNG will allow our Asian trading partners to reduce the emissions from their heavily coal dependent economies.

The Australian Government estimates that our exports of LNG have the potential to lower emissions in LNG importing countries by around 170 Mt CO_2-e by providing an alternative to higher emissions fuels — the equivalent of over one-third of Australia's total annual emissions.

AUSTRALIA'S OPPORTUNITY FOR NET ZERO EMISSIONS TECHNOLOGY

Carbon Capture and Storage

It is the active deployment of technologies by industry to meet emissions reduction commitments that offer significant opportunities for advanced industry development in Australia. Key amongst those technologies is hydrogen and carbon capture and storage (CCS).

CCS is a transformational technology that can be used to achieve significant emissions reduction in the direct use of natural gas at industrial scale including gas processing, power generation and manufacturing. In Australia, the oil and gas industry has been at the leading edge of researching and deploying greenhouse gas storage technologies.

The Australian industry is already investing and moving beyond the research and development phase with demonstration projects underway to deploy a broad range of these technologies as well as the world's largest dedicated geosequestration project at Gorgon Carbon Dioxide Injection Project in Western Australia. Other project scoping assessments are being undertaken in Perth, Carnarvon, Browse, Bonaparte and Cooper Basins as well as assisting other organisations to undertake storage site assessments in the Gippsland and Perth Basins.

CCS is already well established as a safe, large- scale permanent greenhouse gas emissions abatement solution and is seen in several scenarios, like some IPCC scenarios, essential to achieve global climate goals. In those scenarios, acceleration of CCS deployment to reach capacity of more than two billion tonnes per annum by 2040 is essential[4].

Australia has a natural competitive advantage to implement CCS with known high quality, stable geological storage basins, existing infrastructure, world-class technical expertise and regulatory regimes (environment protection, carbon accounting and reporting, financial services).

Australia needs low cost carbon abatement to maintain its position as a leading energy exporter and ensure international competitiveness in a lower-emissions future. With scale and experience, the cost of CCS will decrease, creating the potential to deliver competitive, large-scale abatement for existing industries and new industries such as hydrogen and ammonia.

[4] See www.globalccsinstitute.com for further information.

Just as LNG exports are playing an important role in reducing global emissions, CCS in Australia can play an important role in securing a cleaner energy future.

CCS is an important development for Australia. It enables commercial scale emissions reduction pathways for existing fuel stock, while also opening up pathways for the development of new technologies and energy sources, like hydrogen. Identified as an important consideration as part of the Australian Government's Technology Investment Roadmap, hydrogen can be produced through renewable electricity in electrolysis or from natural gas combined with CCS. While these are different processes, they both produce clean hydrogen.

INVESTMENT IN NATURAL GAS HELPS MANUFACTURING AND THE ECONOMY

Australia's oil and gas industry plays a key role in ensuring reliable, secure and competitively priced energy for all Australians. Our abundant natural gas resources in particular, place Australia in an enviable position to maintain long-term, cleaner energy security domestically and internationally.

The continued expansion of Australia's oil and gas industry provides incredible opportunities to all Australians. The economic advancement in our region is overwhelmingly positive for the nation, playing to our comparative advantages as a secure and reliable energy exporter.

Developing Australia's gas resources can provide significant national environmental, economic and social benefits.

More can be done to unlock greater investment. A 2020 report by EY[5], *Australia's oil and gas industry: kickstarting recovery from COVID-19*, identified that, given the right investment settings, there is an opportunity for the Australian economy to derive substantial benefits from ongoing development of the oil and gas industry. The report identified that a strong and confident Australian oil and gas industry investing in the next wave of competitive large-scale, long-term projects; complementing the uptake of renewables; powering manufacturing; and reducing emissions both here and overseas provides the platform for success now and long into the future.

If the right investment settings are implemented and a new phase of long-term investment is triggered—what EY call a 'high growth scenario'—national economic output could be boosted by more than $350 billion and support the creation of 220,000 jobs over the next two decades. Conversely, EY found that if no action is taken to decrease the stifling effect of the regulatory double-handling, every $1 billion of investment lost through regulation will result in an overall loss of $1.79 billion to the economy. Even worse, regulatory and policy changes that impede or challenges investment into the industry will compound those losses.

If the right investment settings are implemented, the gains from reinvigorated activity in the oil and gas industry have the potential to spread throughout the economy, providing a kickstart for Australia's industrial base through competitive energy prices, boosting demand for services, and generating wealth for all Australians.

[5] See EY (2020), *Australia's oil and gas industry: kickstarting recovery from COVID-19*.

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CONCLUSION

The Australian oil and gas industry as well as being a key source of manufacturing value add and a key part of the Australian economy in its own right, plays a key role in supporting Australia's manufacturing industry. In the case of natural gas, this is both as a critical source of energy and an essential raw material. Only natural gas can provide the high energy heat necessary for many manufacturing processes — without natural gas to fire kilns and furnaces, it would be impossible to make everyday products such as glass, bricks, paper, cement, steel and alumina.

Australia's upstream oil and gas sector continues to work with and support our domestic industries with 108 gas supply agreements signed with customers since December 2012.

What is needed to grow Australia's manufacturing industry is allowing more gas to be unlocked closer to industrial centres. To encourage investment in new gas exploration and development, APPEA's 2020 investment blueprint, ***Powering Australia's Recovery***, called on government to take action in the following areas to recharge industries back to growth:

1. *Encourage investment by improving fiscal settings* including providing investment allowances and deductibility of wage and salary costs;
2. *Streamline environmental regulation* to reduce duplication and costs and achieve and outcomes-based framework;
3. *Encourage exploration* by extending the Junior Minerals Exploration Incentive and allowing junior oil and gas explorers to access the scheme;
4. *Improve regulatory stability and simplify approval processes* to promote more development; and
5. *Promote efficient, open and competitive gas markets* by not seeking to impose a national domestic gas reservation policy and encouraging the lifting of bans on gas projects.

The continued exploration and safe development of Australia's abundant natural gas resources provides incredible opportunities for manufacturing in this country. This can happen with the right policy settings and regulatory certainty that will build confidence and encourage investment.