Brisbane
[redacted]
e: [redacted]
w: www.appea.com.au

9th July 2021

Committee Secretary
Senate Environment and Communications Reference Committee
PO Box 6100
Parliament House
Canberra ACT 2600

Forwarded via email: [redacted]

Dear Secretary,

APPEA Submission: Senate Inquiry into oil and gas exploration and production in the Beetaloo Basin - The Industry Research and Development (Beetaloo Cooperative Drilling Program) Instrument 2021

As the peak national body representing companies engaged in oil and gas exploration throughout the Northern Territory and Australia, the Australian Petroleum Production & Exploration Association (APPEA) welcomes the opportunity to make a submission to the Senate Environment and Communications Reference committee. APPEA's member companies account for more than 95 per cent of Australia's oil and gas production. Further information about APPEA can be found on our website, at www.appea.com.au. This submission incorporates the views and experiences of APPEA members.

Australia is a leading producer of oil and natural gas and has an abundance of reserves which will last for many years to come. It is the development of these reserves and basins that will deliver the reliable supply of energy that is essential to the economic prosperity of Australia, and the continued delivery of cleaner energy to trading partners through our region and beyond.

The Australian government, along with state and territory governments, offer incentivised programs to the energy and resource sector to encourage and stimulate economic benefits for Australia. The Beetaloo Cooperative drilling program is one program which stands to accelerate private sector investment in the Northern Territories Beetaloo basin and surrounding region. Recent and historical government incentive programs include:

- Federal Government, Gas Acceleration Program (GAP)- established in 2017, the $26 million Gas Acceleration Program (GAP) was established to accelerate the exploration and development of gas resources. GAP supported projects with the greatest likelihood of securing new and significant gas supplies for the eastern gas market from onshore gas fields.
- QLD Collaborative Exploration Initiative (CEI)- a current program aiming to support Queensland's resource exploration companies to grow and make discoveries that will secure future resources for the benefit of the state.
- WA government co-funded exploration incentive Scheme – A current program aiming to make funding available for analysis of existing State resources offers up to a 50% refund, up to $50,000 per application

- SA government Plan for Accelerated Explorations grants scheme, an allocation of $48 million in grants accessed in 2017-2018

The success of these programs in generating and stimulating local economies is measurable, with the example of the South Australian Accelerated Explorations grants program returning some $223 million in private investment into the state.[1]

Creating local jobs and opportunities in the Beetaloo

In 2015, Deloitte Access Economics research found that developing the Territory's substantial shale gas resources could create up to 6,300 new long-term jobs and generate up to $1 billion in additional NT Government revenue over the next 20 years. The report also states that by 2040, the NT's Gross State Product could be between $5.1 billion and $7.5 billion higher than the 2012-13 base case in real terms. This represents an increase of between 26 percent and 37 percent on current estimates for the NT economy.

With successful exploration and appraisal, the development of new gas resources in the Territory could secure the Territory's future for decades with the benefits of jobs, local business opportunities, new value-adding industries, infrastructure and community investment. This will flow to Darwin, Katherine and regional communities as well as a future self-generating revenue stream by way of royalty payments to the Northern Territory government.

Independent economic modelling commissioned by the federal government, found that there is an optimal timeframe for Beetaloo development. Meeting this window of maximum commercial opportunity relies on speeding up resource understanding.[2]

Encouraging industry exploration to build a clear picture of the Beetaloo resource will create jobs and opportunities for the Northern Territory through direct employment, local supplier contracts and the flow-on benefits to local businesses in regional communities. Importantly, it will create jobs and training opportunities for local Aboriginal communities.

Maximising local Aboriginal employment

Australia's oil and gas industry is committed to employing and training local Aboriginal people and procuring goods and services from Aboriginal owned and operated businesses. An important element of unlocking the Beetaloo is the federal government's $1.9 million investment to work with stakeholders in the Barkly region to identify how increased gas activity in the Beetaloo sub-basin can yield significant economic benefits for Aboriginal people in both the region and wider Northern Territory.

1 South Australian Department of Energy and Mining – Energy Resources. (2021). *PACE Gas Grants: Table 1: Summary of PACE Gas Rounds 1 and 2*. Retreived from https://www.petroleum.sa.gov.au/industry-activity/pace-gas-grants

2 Australian Government Department of Industry, Science, Energy and Resources. (2021). *Unlocking the Beetaloo; The Beetaloo Strategic Basin Plan*. Retrieved from https://www.industry.gov.au/data-and-publications/unlocking-the-beetaloo-the-beetaloo-strategic-basin-plan

Unemployment in regional centres around the Beetaloo basin is high, with the Barkly region experiencing up to 40% Aboriginal youth unemployment.[3] For communities and young Territorians who experience intergenerational poverty and unemployment, the opportunities that the Beetaloo Basin development could yield would be profound. The intent of the Industry Beetaloo Cooperative Drilling Program is to see timely completion and expedition of exploration activities and ensure the local benefits of the Beetaloo Basin are realised sooner.

The Aboriginal Economic Development Strategy for the Beetaloo is a supplementary initiative of the Barkly Regional Deal, signed by the Australian Government, Northern Territory Government and Barkly Regional Council in 2019. The Barkly Regional Deal covers 28 initiatives and $78.4 million in new investment across the Barkly. It is one of several initiatives to meet the intent of the Beetaloo Strategic Basin Plan in building a clear picture of the Beetaloo. As the plan has identified, the first steps in achieving this clearer picture is for gas exploration companies to finalise their exploration activities.

Importantly, the Barkly Governance Table – the body that will lead the development and implementation of the Barkly Regional Deal – includes representatives from the Patta Aboriginal Corporation, Julalikari Council Aboriginal Corporation, Anyinginyi Health Aboriginal Corporation as well as representatives from a number of other language groups. As was evident by lockdown restrictions as in the Northern Territory last week, exploration and appraisal efforts in the Beetaloo have experienced delays, these delays have largely been due to the moratorium on gas development and workforce restrictions associated with COVID-19. The intent of the Beetaloo Cooperative Drilling Program, is to encourage timely completion and expedition of exploration activities and ensure that the resource potential of the Beetaloo Basin is better defined.

Working with Land Councils

APPEA and our members support the significant and important role that the land councils play in giving Aboriginal people a voice on issues affecting their land, seas and communities.

Since the mid 1970s, land councils have acted as independent entities that carry out the functions under the Land Rights Act. The Northern Land Council (NLC) and the Central Land Council (CLC) represent traditional Aboriginal owners (and native title holders under the Native Title Act) of the land in all the prospective onshore shale gas basins of the NT.

All prospective leases for oil and gas activities in the Northern Territory are subject to Native Title rights and interests. The majority of prospective land within the Beetaloo Basin is held by pastoral leasehold land.[4] The process to gain access to an exploration lease involves an application to the NT Government for the grant of a petroleum interest under the Petroleum Act, the statutory processes set out in the Land Rights Act and the Native Title Act 1993 (Cth) (Native Title Act) must first be complied with. The Land Rights Act and the Native Title Act provide a legal framework whereby traditional Aboriginal

3 Australian Government Department of Infrastructure, Regional Development and Cities. (2019). *Barkly Regional Deal.* Retrieved from https://www.regional.gov.au/regional/deals/Barkly.aspx

4 Northern Territory The Scientific Inquiry into Hydraulic Fracturing in the Northern Territory. (2018). *Final Report* (p. 270). Retrieved from https://frackinginquiry.nt.gov.au/inquiry-reports/final-report

owners and native title holders are informed about, and consulted in respect of, development on their land.

The consultation process involved in gaining access to petroleum and explorations permits takes many years and involves continued engagement with relevant parties. There is an established practice whereby the Traditional Owners, the Land council and the exploration company meet to reach an agreement. Traditional Owners set out the terms under which the activity can occur and are updated on the work program as it progresses; regular engagement is a critical step in the process.

From the early stages of exploration, protection of sacred sites and the environment is paramount to the negotiated outcomes of the consultation. Sacred site surveys and ecological surveys are conducted prior to the commencement of any work and inform the various legislative clearance certificates and environmental approvals. In addition to the cultural and environmental protections, the Traditional Owners, the Land council and the exploration company reach an agreement in the form of exploration royalties, these royalties are a material benefit flowing to Traditional Owners, in areas of very limited opportunity, even in early stages of exploration.

Protecting the environment

Industry understands that any economic benefits would be diminished if they came with negative environmental or social impacts. The gas industry has a demonstrated track record of safe, sustainable operations throughout Australia, which is supported by the many robust regulatory frameworks industry complies with across states and territories. The first well hydraulically fractured in the NT was in 1967, the East Mereenie well, South-West of Alice Springs. This activity occurred without incident and the activity has not impacted the groundwater or surface water surrounds. Throughout Australia, thousands of wells have been drilled – and more than 1000 have been hydraulically fractured, with no significant impact on the environment or groundwater resources.

As with any industry, there are risks involved that must be managed and minimised. Robust regulations must be enforced to ensure the highest standards are maintained. The NT gas industry supports the work now being done to finalise the recommendations from the Pepper Inquiry and improvements to the regulatory framework for the Territory's onshore gas industry. The industry is also committed to ensuring the equitable treatment of all stakeholders, particularly Traditional Owners, pastoral leaseholders and others on whose land development would take place.

The Scientific Inquiry into Hydraulic Fracturing in the Northern Territory 2017-2018

Chaired by the Hon. Justice Rachel Pepper, a panel of eight scientists undertook an independent scientific inquiry into the practice of hydraulic fracturing in the NT. The panellists all hold doctorates and professional degrees in areas relevant to the inquiry terms of reference including:

- water quality management
- ecotoxicity and chemistry
- ecology and geology
- human health and cultural history.

The inquiry conducted hearings and held public forums to consult with the wider community and gather scientific evidence available to then provide recommendations to the government. During the 15-month inquiry, the panel:

- met 12 times;
- held 52 community forums, including 37 in regional and remote areas, and 15 in urban centres;
- conducted 151 public hearings;
- published 31 Community Updates; and
- received 1257 submissions

The Northern Territory government accepted all 135 recommendations as handed down from the scientific inquiry panel. The Panel concluded that, should the government implement those recommendations, the proposed risks of hydraulic fracturing in the NT would be "mitigated or reduced – and in some cases eliminated altogether – to acceptable levels".[5] The Honourable Justice Rachel Pepper also remarked that: "There can be no doubt that this Inquiry has, at all times, conducted itself independent of Government and independent of any industry."[6]

The implementation process included the appointment of an independent officer, Dr David Richie. The role of the Independent Officer is to provide the Chief Minister and government with independent advice on how the implementation is progressing and being managed. Significant work has commenced on the implementation of the 135 recommendations, see implementation progress site: https://hydraulicfracturing.nt.gov.au/implementation-plan/progress

The Beetaloo regional reference group (BRRG) was also established to provide a consultative forum for the community to provide input and feedback to the NT government on the Strategic Regional and Environmental Baseline (SREBA) studies, a component of the 135 recommendations. The Northern Land Council is represented on the BRRG. As of the 6th of July 2021, two BRRG meetings had been held, records of meeting and information provided is publicly available on the government website: https://hydraulicfracturing.nt.gov.au/sreba/beetaloo-regional-reference-group

Supporting a cleaner energy future

Australia's abundant natural gas resources, particularly those in the Northern Territory, place Australia in an enviable position to maintain long-term, cleaner energy security domestically and internationally. Natural gas makes it possible for Australia and the Territory to meet the world's growing energy needs over the coming decades while curbing emissions and adapting to the impact of climate change.

Gas has an essential role to play in reducing emissions in Australia and around the world.
When burned or used for electricity generation, natural gas releases up to 50 per cent less carbon dioxide than coal. When compared to the National Energy Market (NEM) average - the average emissions released by the interconnected network connecting the east coast of Australia to the electricity grid – natural gas is much cleaner, with lower emissions.

5 Pepper, R. (2018, March 27). *Remarks upon delivery of Final Report.* Retrieved from https://frackinginquiry.nt.gov.au/inquiry-reports/final-remarks-from-honourable-justice-rachel-pepper
6 ibid

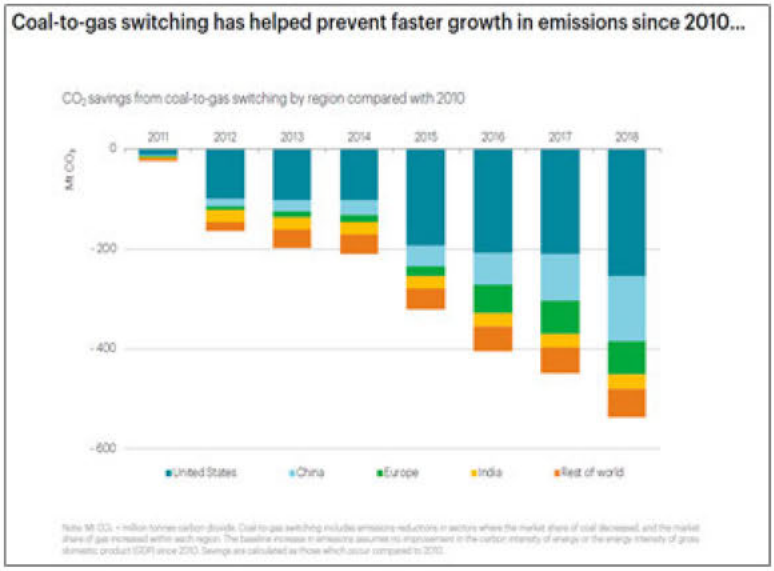
The use of natural gas has other benefits, when compared to other fuel sources. These include reduced emissions of fine particulates, reduced emissions of Sulphur Dioxide (which contributes to acid rain and smog) and nitrogen oxides, and a much lower demand for water for power station cooling.

Case-study - the role of natural gas in reducing CO2 emissions

The increased use of natural gas is necessary to reduce emissions at a global scale. The evidence for this can be found in the advanced economies of Europe and the United States.

In the last decade, coal-to-gas switching has saved around 500 million tonnes of CO2, an effect equivalent to putting 200 million zero carbon electric vehicles on the road over the same period.[7]

In the same decade, in the UK, coal-to-gas switching has reduced emissions from power generation by 50%. In 2019, US emissions fell by 2.9 per cent due to increased gas-fired generation.



Source: IEA, *The Role of Gas in Today's Energy Transitions*

In theory, 1.2 gigatonnes (over twice that saved in the last decade) of CO2 could be avoided in coal-to-gas switching using existing infrastructure, reducing global power emissions by almost 10%.[8]

7 International Energy Agency. (2019). *The Role of Gas in Today's Energy Transitions*. Retrieved from https://www.iea.org/reports/the-role-of-gas-in-todays-energy-transitions

8 International Energy Agency. (2021). *World Energy Model Documentation*. Retrieved from https://www.iea.org/reports/world-energy-model/stated-policies-scenario

Pathway to Paris

Natural gas will play a key role in achieving the objectives of the Paris Agreement. The Intergovernmental Panel on Climate Change (IPCC) found in its Fifth Assessment Report (AR5) that:

- The human influence on the climate system is clear.
- The more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts.
- Humans can limit climate change and build a more prosperous, sustainable future.

In December 2015, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) met in Paris for the 21st Conference of Parties (COP 21). That meeting resulted in a global agreement which, for the first time, committed all Parties to act on climate change. The core aim of the agreement is: 'to strengthen the global response to the threat of climate change' by 'holding the increase in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels'.

Crucially, the commitment also includes "increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience".[9]

Meeting the aims of the Paris Agreement implies a transformation of the energy system over the course of this century. The global challenge is to ensure access to energy, while moving towards net-zero greenhouse gas emissions in the second half of this century, and ideally by 2050. Enhanced access to affordable reliable energy is essential for the growth of strong economies, sustained improvements in the quality of life and the eradication of poverty.

A landmark report by the CSIRO's Gas Industry Social and Environmental Research Alliance (GISERA) confirmed the greenhouse gas emissions benefits from increased use of natural gas in domestic and export markets. The report *Whole of Life Greenhouse Gas Emissions Assessment of a Coal Seam Gas to Liquefied Natural Gas Project* analysed life cycle emissions, including extraction, transportation and usage of coal seam gas (CSG) in Queensland's Surat Basin.[10]

The report estimates lifecycle greenhouse gas emissions associated with an operating Queensland LNG project in Australia—and provides data about the benefits of natural gas for electricity generation. The report presents a comparison of greenhouse gas emissions from electricity production in Australia from Queensland thermal coal or natural gas derived from CSG operations. Its findings show a reduction in emissions of up to 50 per cent when the full lifecycle of greenhouse gas emissions from all parts of the supply chain is incorporated.

9 *Paris Agreement*, Paris, 12 December 2015. *Adoption of the Paris Agreement*, Article 2.1(b). Retrieved from https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

10 Schandl, H., Baynes, T., Haque, N., Barrett, D., & Geschke, A. (2019). *Final Report for GISERA Project G2 - Whole of Life Greenhouse Gas Emissions Assessment of a Coal Seam Gas to Liquefied Natural Gas Project in the Surat Basin, Queensland, Australia*. CSIRO, Australia. Retrieved from https://gisera.csiro.au/project/whole-of-life-cycle-greenhouse-gas-assessment/

The report found:

> *... considerable climate benefits are possible where natural gas replaced coal for electricity generation; particularly in developing countries.*[11]

A similar lifecycle analysis was performed by Environmental Resource Management (ERM)[12], and peer reviewed by CSIRO, and shows the development of the Browse and Scarborough projects could avoid 650 million tonnes of CO2-e in greenhouse gas emissions between 2026 and 2040 by replacing higher emission fuels in countries that import Australian gas.

The report found:

> *... increasing natural gas contributes to lower greenhouse gas (GHG) emissions when it replaces the burning of coal and oil for power generation, as well as combustion for heat. In Europe, the USA and China, increasing consumption of natural gas has substantially contributed to lower GHG emissions ...*[13]

The International Energy Agency, in its report *The Role of Gas in Today's Energy Transitions,* found that between 2010 and 2018

> *...coal-to-gas switching has saved around 500 million tonnes of CO_2 – an effect equivalent to putting an extra 200 million EVs running on zero-carbon electricity on the road over the same period.*[14]

The use of Australian LNG by our key trading partners can help improve air quality, reduce greenhouse gas emissions and improve energy security.

In 2019, Australian LNG was exported to ten different destinations (Japan, China, South Korea, Malaysia, Singapore, Taiwan, Thailand, United Arab Emirates and Other Asia-Pacific). Many of these nations are also significant investors in Australian LNG projects.

11 ibid
12 McConnell, P., & Grant, T. (2020). *Comparative Life Cycle Assessment: Browse and Scarborough.* Environmental Resource Management. Retrieved from https://www.erm.com/public-information-sites/woodside-proposed-gas-fields-lca/
13 ibid
14 International Energy Agency. (2019). *The Role of Gas in Today's Energy Transitions*. Retrieved from https://www.iea.org/reports/the-role-of-gas-in-todays-energy-transitions

Australia's cleaner energy future

APPEA has a longstanding set of policy positions in relation to climate change. Since 2010 these have formed the basis of a formal set of climate change principles, which are reviewed every 5 years. These reviews produced a second edition in early 2016 and the third and current edition in February 2021.[15]

At their core, the principles are designed to assist policymakers in developing efficient and effective responses to deal with climate change.

They also provide a framework for the industry to assess and respond to climate change policies put forward by governments and others. The full set of climate change principles are at Attachment 4. In summary, these cover that:

1. Net zero emissions by 2050 should be the goal of policy.
2. Climate policies should be integrated with economic, social, technology, energy policies.
3. Maintain competitiveness of trade-exposed industries, such as LNG.
4. Advance access to affordable, reliable, sustainable energy.

A copy of APPEA's Climate Change Policy Principles can be found in Attachment 1.

Oil and Gas in the Northern Territory

The Australian oil and gas industry is already a key component of the Northern Territory economy. Darwin is a substantial LNG export hub, home to two LNG plants (together comprising three LNG trains) and is the service and supply centre for the world-first Prelude Floating LNG project in the Timor Sea. The Territory is also home to one of Australia's longest-running petroleum operations with Central Petroleum near Alice Springs. The INPEX-operated Ichthys LNG and the Santos-operated Darwin LNG facilities directly employ approximately 850 full time workers, equivalent to 170 small businesses, and many more through service delivery. Related service and supply work for Territorian businesses is worth an estimated a total $100million per annum to the Territory, with room to expand this further. Some examples of how the industry is working with the local community are provided below.

INPEX | Ranger Grants Program

The Northern Territories Aboriginal Ranger Grants Program has received an additional $24 million in sponsorship from INPEX as part of a new agreement between the Territory Labor Government and the company. The funding, which will be delivered over two decades, has been made possible through the company's Coastal Offsets Strategy. The funding is also part of a much bigger commitment by INPEX that includes $91 million of offsets over the 40-year life of Ichthys LNG.

15 Australian Petroleum Production & Exploration Association. (2021). *Australia's cleaner energy future: Incorporating the third edition of the APPEA Climate Change Policy Principles*. Retrieved from https://www.appea.com.au/all_news/oil-and-gas-industrys-climate-principles-support-a-cleaner-energy-future/

Santos | Larrakia Rangers Annual Surveys
Santos employs rangers from the local Traditional Owners, the Larrakia People, to support the annual environmental health monitoring of the mangrove vegetation and soil health surrounding the Darwin LNG gas plant. The Larrakia Rangers' local knowledge of the region is crucial in supporting the environmental survey team.

Origin | Local Supply Contracts
Origin's onshore exploration activities in the Northern Territory are ensuring early benefits are shared with Traditional Owners, host pastoralists and the local communities of Daly Waters and Elliott. Indigenous-owned Triple P contracting, based in Elliott, has a contract with Origin to provide monitoring and maintenance services at their existing well site locations. A Humpty Doo business, Arnhem Earthmoving and Mechanical (AEM), was also successful in securing a contract with Origin as a civil and infrastructure service provider.

Conclusion

In summary the government correctly identified the need to expedite exploration in the region, by way of an incentive program. The grants under the Beetaloo Cooperative Drilling Program (capped at $50 million) are expected to deliver several additional exploration wells by 2022 and bring forward at least $150 million in private investment to the basin.

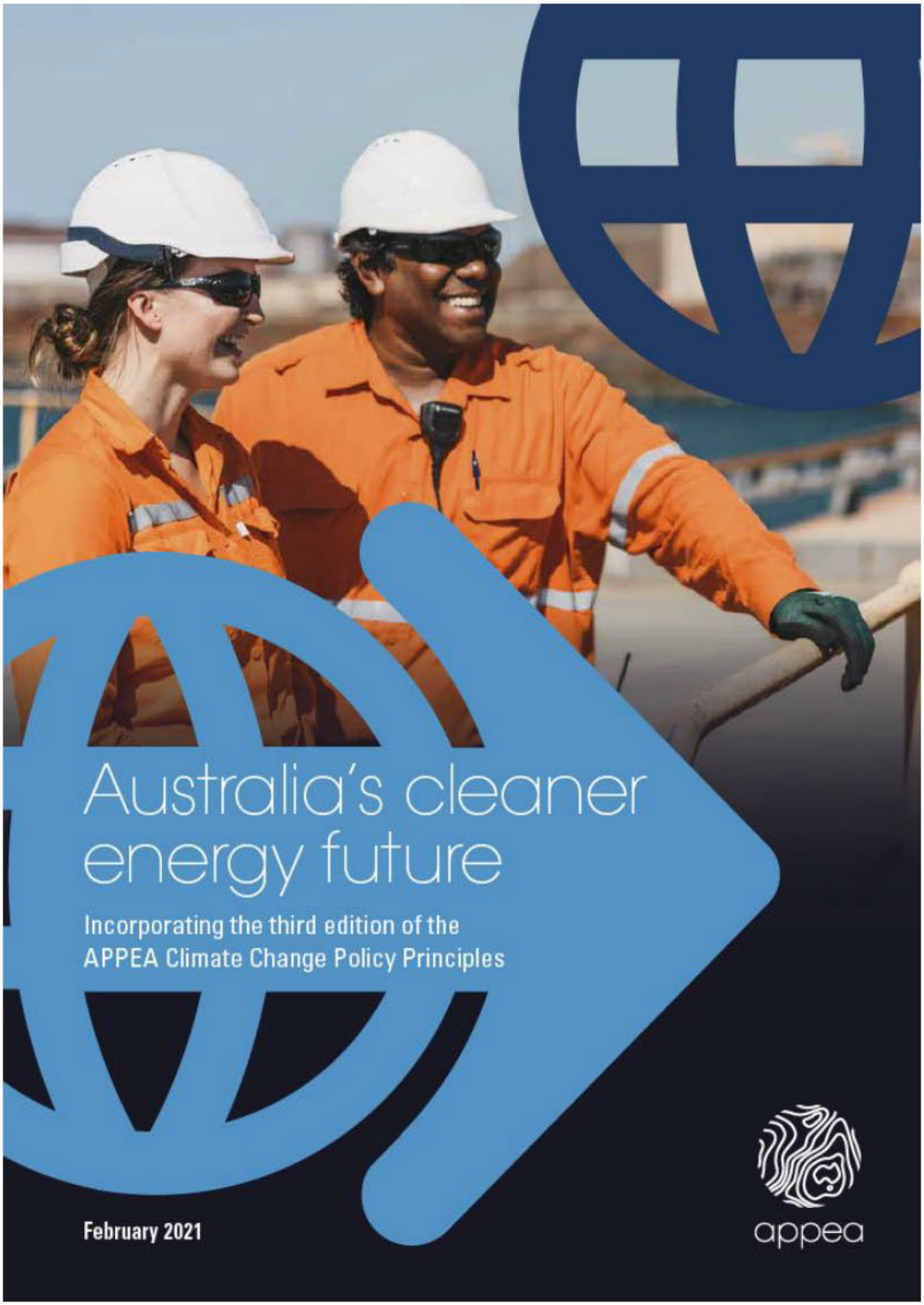
If you have any queries or for further information in relation to the contents of this letter and our submission, please contact me at [redacted]

Yours Sincerely,

[redacted]

Cassy Schmidt
Director – Northern Territory

ATTACHMENT 1: Australia's cleaner energy future: Incorporating the third edition of the APPEA Climate Change Policy Principles



Introduction

The Australian oil and gas industry has a key role to play in a cleaner energy future, both in Australia and globally.

APPEA supports a national climate change policy that delivers greenhouse gas emissions reductions, consistent with the objectives of the Paris Agreement, and applies a broad-based price signal on emissions to facilitate broad-based investment decisions at the lowest cost to the economy.

Australia's goal should be an approach to climate policy that is national, consistent with the objectives of the Paris Agreement and which supports the environmental objectives and industries that provide jobs and economic growth. These are not competing goals but need to be aligned if outcomes are to be sustainable.

Climate change policy should work cohesively with other policies—including energy, international trade, taxation, economic growth, population, and environmental and social responsibility.

Policies should achieve emissions reductions consistent with net zero emissions across the Australian economy by 2050 as part of a contribution to a goal of global net zero emissions by 2050.

The *APPEA Climate Change Policy Principles* set out below are designed to assist policymakers in developing efficient and effective responses to deal with climate change.

This document is a companion to the *Industry Action on Emissions Reduction* report, which provides an overview and case studies of some of the activities and initiatives undertaken by the oil and gas industry to reduce its greenhouse gas emissions.[1]

APPEA's position on climate change

APPEA supports the science of climate change and the need to reduce global emissions, consistent with the objectives of the Paris Agreement. This will require action by individuals, companies, and governments.

Societies around the world continue to strive towards two major and interdependent objectives:

- Meeting greenhouse gas emissions reduction commitments to reduce the environmental, economic and social risks posed by rising greenhouse gas emissions and climate change.
- Maintaining and expanding affordable, secure energy supplies to meet growing consumer demand for energy as populations and living standards grow.

Working together to meet the global challenge

The central aim of the Paris Agreement,[2] which entered into force in 2016, is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels. The agreement also aims to achieve net zero greenhouse gas emissions globally in the second half of this century.[3]

More recently, the Intergovernmental Panel on Climate Change (IPCC)[4] found that limiting global warming to 1.5°C above pre-industrial levels would require changes on an unprecedented scale, including:

- deep emissions cuts across all sectors
- a range of technologies
- behavioural changes
- increased investment in low carbon options.

The IPCC also found these changes would have benefits to people and natural ecosystems.

Making genuine progress requires an integrated set of solutions. This includes actions by industry to reduce emissions, provide and advance lower carbon energy technologies, and support effective national and international policies.

COVER IMAGE COURTESY OF WOODSIDE

appea

Policy principles

1 Net zero emissions by 2050 should be the goal of national and international policy

The objectives of the Paris Agreement are to keep a global temperature rise this century to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels. Policies should be consistent with and support these objectives.

Policies should achieve emissions reductions consistent to achieve net zero emissions across the Australian economy by 2050 as part of a contribution to a goal of global net zero emissions by 2050.[5] The Australian Government has the responsibility to set interim targets and for the policy framework that meets them.

Australia should continue to engage the international community to pursue environmentally effective and economically efficient climate change policies.[6] An international policy framework should:

- promote international participation
- minimise the costs and distribute the international burden equitably
- ensure the task of reducing emissions is inclusive of all sectors and countries
- allow for the unrestricted flow of credible emissions units between international jurisdictions
- be underpinned by transparent reporting arrangements.

2 Climate policies should be efficient, enduring and integrated with economic, social, technology and energy policies

Australia's policy response should seek to:

- Set clear, long-term targets for emissions reduction that are consistent with the objectives of the Paris Agreement and provide predictability to industry to support planning and future investment.
- Deliver low cost greenhouse gas emissions abatement through an appropriately designed price mechanism that provides an economy-wide transparent signal to shape business and consumer plans and investments.
  - The mechanism should be efficient, have low compliance costs, and support international trade that recognises different national circumstances.
- Recognise and allow the use of the widest range of credible domestic and international offsets.
- Provide a level playing field for new entrants and avoid penalising early movers who have previously implemented abatement measures.
- Support the development and deployment of pre-commercial/new and emerging low-emissions technologies.
- Support climate adaptation efforts, including through international and national modelling to provide location-specific climate change forecasts and impacts, risk-management strategies to reflect likely impacts of climate variability and protect people and critical infrastructure from the negative impacts of climate change.

In delivering this policy response, the Australian Government and the state/territory governments have separate and distinct roles. The Australian Government should set the Nationally Determined Contributions (NDCs). States and regulators should support delivery of the nationally set target and avoid any overlap or duplication.

> Australia should continue to engage with the international community to pursue environmentally effective and economically efficient climate change policies

3 Australia's international competitiveness should be enhanced

The Australian Government should pursue climate policies that maximise growth in jobs and investment. In the event Australia takes action before comparable action is taken by the nations with which we compete, the Australian policy response should maintain the competitiveness of Australian trade-exposed industries, such as LNG, by minimising the costs the industry faces in the absence of a carbon price being imposed on energy sources in customer countries and competitors.

As part of its international engagement, Australia should:

- Continue to pursue economically efficient climate change policies, including the development of international accounting of greenhouse gases and offset markets, e.g. through Article 6 of the Paris Agreement.
- Support the use of its gas resources to assist in the decarbonisation pathways of other countries by promoting its LNG export sector in trade negotiations.

4 Universal access to affordable, reliable, sustainable and modern energy must be achieved

Australia's policy response should recognise:

- UN Sustainable Development Goal 7[7] to ensure universal access to affordable, reliable, sustainable and modern energy—noting that increasing global population and urbanisation are generating growing demand for energy.
- Secure energy supply is crucial for a strong modern economy and a healthy, vibrant society.
- Natural gas has a key role to play as we continue to move towards a low-carbon economy.

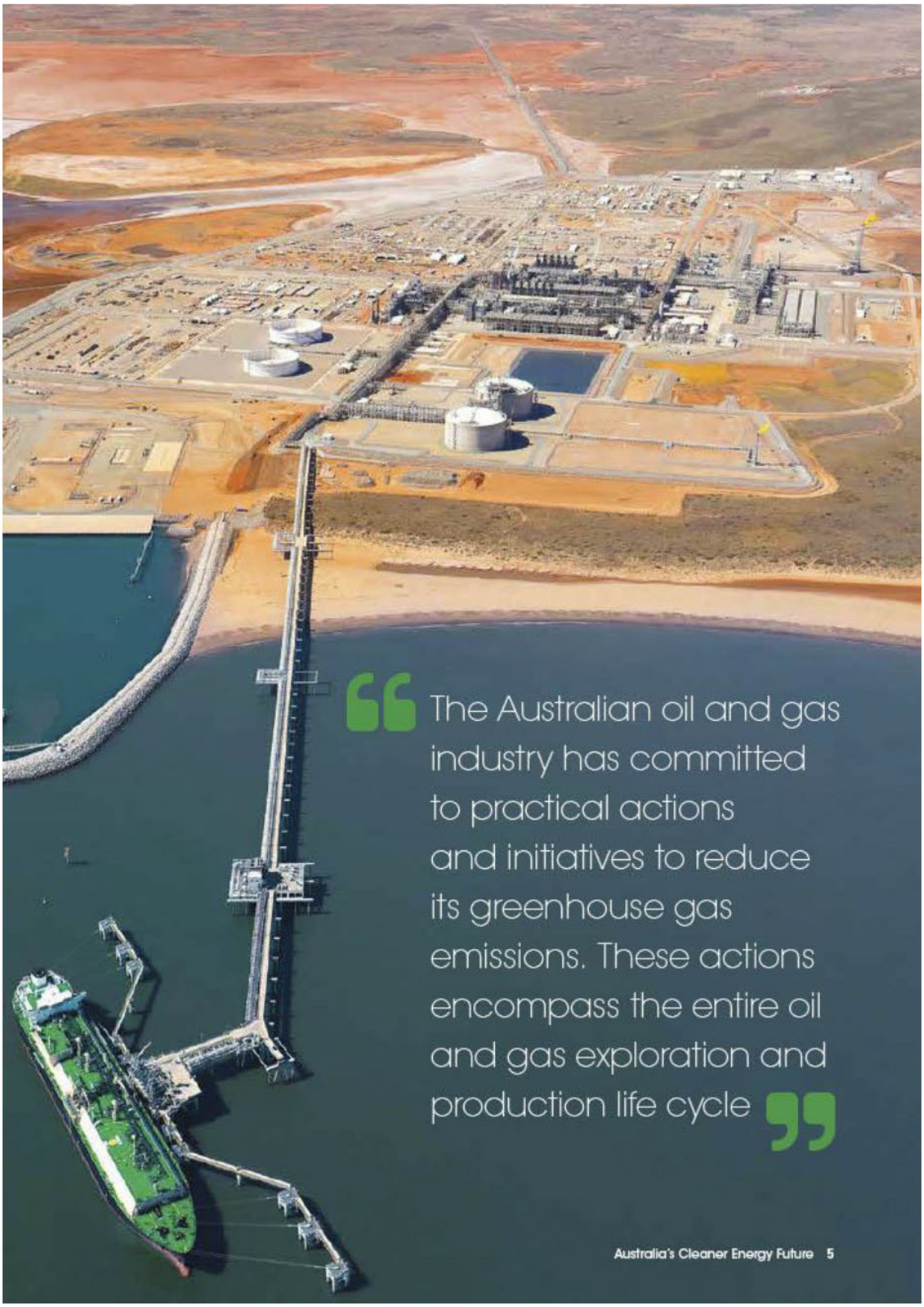
Australia's Cleaner Energy Future 3

Commitment to action

The Australian upstream oil and gas industry has a long history of engagement in the discussion around the most effective and efficient policy measures to reduce global greenhouse gas emissions.

APPEA's role in that process is to provide a forum where member companies can engage and share information on the initiatives each company is undertaking to generate greater collaboration and action across the industry. While there are some common approaches amongst many APPEA members, individual members are free to pursue initiatives that best meet the needs of their business and its investors and stakeholders.

The APPEA website (www.appea.com.au) provides up-to-date information on individual member initiatives. Reference should also be made to the individual APPEA member company websites.


“The Australian oil and gas industry has committed to practical actions and initiatives to reduce its greenhouse gas emissions. These actions encompass the entire oil and gas exploration and production life cycle”
Australia's Cleaner Energy Future 5

appea

Natural gas:

Integral to a low-carbon economy

Australia generates significant national economic, environmental and social benefits through the use of its substantial natural gas resources.

Using more natural gas in Australia's power generation and resource processing would enhance the nation's ability to meet increasing energy needs and reduce emissions.

Increasing its use can deliver immediate and substantial emissions savings. With structural changes underway in the power generation sector and growth in renewable energy technologies, natural gas is the perfect partner to intermittent renewable energy that requires 'on-call' electricity generation to manage falls in renewable output or peaks in demand. As more renewable energy is integrated into the grid, this balancing role becomes more critical.[8]

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.[9]
- 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.[10]
- 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.[11]
- 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.[13]
- 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.

appea

Natural gas:

A key part of a cleaner energy future in Australia and in the Asia–Pacific

The role of natural gas in a cleaner energy future in Australia

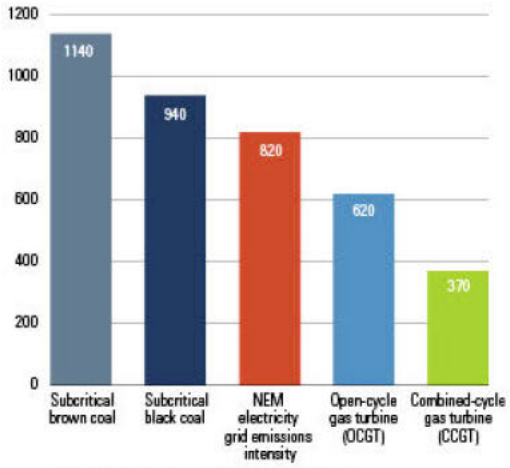
Using more natural gas in Australia's power generation and resource processing could significantly enhance the nation's ability to meet increasing energy needs and reduce emissions. These outcomes are possible because available natural gas power generation technologies can reduce greenhouse gas emissions compared to the average across the National Electricity Market and by even more compared to traditional power generation technologies.[14]

In addition, intermittent renewable energy requires 'on-call' electricity generation to manage falls in renewable output or peaks in demand. Gas-fired generation is a key technology capable of delivering that flexible response. As more renewable energy is integrated into the grid, this balancing role becomes more critical.

Natural gas-fired generation also has the advantage of providing long-duration energy firming. As the electricity market evolves, a portfolio of energy storage and firming options will be required which will likely include natural gas-fired generation, hydro and batteries.

Fuel switching would also have other benefits. Natural gas plants use much less water than coal-fired power and produce much lower levels of noxious substances such as sulphur dioxide, nitrogen oxides and fine particle emissions. Burning gas instead of coal improves urban air quality.

Estimated operating emissions for new coal and gas-fired power stations (kg CO_2-e/MWh)



Source: Data from *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future* (2017).

The role of natural gas in a cleaner energy future in the Asia–Pacific

Australia's resources of natural gas and proximity to growing markets make us well placed to meet the global climate change challenge while substantially contributing to Australia's economic growth.

While the demand for energy as part of the industrialisation of Asian economies is a key driver, the properties of natural gas as a lower emitting and cleaner burning fuel is also driving much of the international demand for LNG.

There are three key drivers for international LNG demand:[15]

- Increasing energy needs as nations develop.
- Emissions and air quality challenges from the alternative energy sources currently available to meet that demand.
- The need for energy security.

The use of Australian LNG by our key trading partners can help improve air quality, reduce greenhouse gas emissions and improve energy security.

A landmark report by the CSIRO's Gas Industry Social and Environmental Research Alliance (GISERA) confirmed the greenhouse gas emissions benefits from increased use of natural gas in domestic and export markets. The report[16] analyses whole-of-lifecycle greenhouse gas emissions, including extraction, transportation and usage of natural gas in Queensland's Surat Basin.

This is the first time estimates of lifecycle greenhouse gas emissions associated with an operating Queensland LNG project in Australia have been used—and provides data about the benefits of natural gas for electricity generation. The report presents a comparison of greenhouse gas emissions from electricity production in Australia from Queensland thermal coal or natural gas derived from CSG operations. Its findings show a reduction in emissions of up to 50 per cent when the full lifecycle of greenhouse gas emissions from all parts of the supply chain is incorporated.

The report found:

… considerable climate benefits are possible where natural gas replaced coal for electricity generation; particularly in developing countries.

A similar lifecycle analysis was performed by Environmental Resource Management (ERM),[17] and peer reviewed by CSIRO, and shows the development of the Browse and Scarborough projects could avoid 650 million tonnes of CO_2-e in greenhouse gas emissions between 2026 and 2040 by replacing higher emission fuels in countries that import Australian gas.

The report found:

… increasing natural gas contributes to lower greenhouse gas (GHG) emissions when it replaces the burning of coal and oil for power generation, as well as combustion for heat. In Europe, the USA and China, increasing consumption of natural gas has substantially contributed to lower GHG emissions …

The role of technology
in reducing greenhouse gas emissions

Australia has substantial natural gas resources. Natural gas offers a relatively low-cost emissions abatement opportunity. This means developing these resources can provide significant national environmental, economic and social benefits.

The Australian oil and gas industry has its own emissions reduction journey. The industry also works both in Australia and around the world directly and in partnership with others to accelerate the development of low emissions technologies with the potential to deliver step-change emissions reductions from the processing and use of our products over a longer time horizon.

Two examples as part of this broader range of technologies and emissions reduction activities and initiatives[18] include carbon capture and storage and hydrogen.

The role of carbon capture and storage (CCS) in a cleaner energy future

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.[19]

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).[20]

Australia needs low cost carbon abatement to maintain its position as a leading energy exporter and ensure international competitiveness in a lower-carbon 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.

Just as LNG exports are playing an important role in reducing global emissions, CCS in Australia can play an important role in securing the future of Australia's oil and gas industry in a cleaner energy future.

Natural gas is a pathway to a large-scale and innovative commercial hydrogen industry

An Australian hydrogen industry and a local market could generate significant opportunities for the country. Australia's upstream oil and gas industry is well placed to assist in the development in one of the pathways[21] to a large-scale and innovative commercial hydrogen industry. This is both in using natural gas to produce hydrogen and using gas infrastructure to process and transport hydrogen.

Australia's LNG export success story means the Australian upstream oil and gas industry has the technology, expertise, commercial and trade relationships to make, in particular, hydrogen exports a reality. This means Australia is well placed to capitalise on our already abundant natural advantage. Hydrogen is already being produced from Australian LNG exports.

Developing a local hydrogen industry could enable lower emissions both in Australia and internationally, reduce energy costs, deliver energy security, together with new employment and manufacturing opportunities.

The Australian oil and gas industry has a key role to play in a cleaner energy future, both in Australia and globally

APPEA supports a national climate change policy that delivers greenhouse gas emissions reductions, consistent with the objectives of the Paris Agreement, and applies a broad-based price signal on emissions to facilitate broad-based investment decisions at lowest cost to the economy.

APPEA and its members will continue to work with all of Australia's governments to:

- Support a national climate change policy response consistent with the policy principles outlined in this paper.
- Promote development of lower emissions technologies, such as carbon capture and storage and hydrogen.
- Make Australia more attractive as an investment destination for LNG projects, so that Australian LNG can help Australia's trading partners reduce their greenhouse gas emissions, thereby contributing to a potential significant reduction in global emissions when compared to the use of higher-emitting fuels.

Australia's Cleaner Energy Future 11

About APPEA

The Australian Petroleum Production & Exploration Association is the peak national body representing Australia's oil and gas exploration and production industry. APPEA has about 60 full member companies. These are oil and gas explorers and producers active in Australia. APPEA members account for an estimated 98 per cent of the nation's petroleum production. APPEA also represents about 140 associate member companies that provide a wide range of goods and services to the upstream oil and gas industry.

APPEA works with Australian governments to help promote the development of the nation's oil and gas resources in a manner that maximises the return to the Australian industry and community. APPEA aims to secure regulatory and commercial conditions that enable member companies to operate safely, sustainably, and profitably. The association also seeks to increase community and government understanding of the upstream petroleum industry by publishing information about the sector's activities and economic importance to the nation. APPEA also hosts conferences each year to exchange ideas and contribute to the development of the industry's policy positions.

Vision APPEA's vision is 'Energy for a Better Australia'.

Purpose To be the effective voice of the oil and gas industry on the issues that matter, working collaboratively with industry and the community.

Endnotes

1 For more information and for a copy of the *Industry Action on Emissions Reduction* report, see www.appea.com.au.

2 UNFCC (2016), The Paris Agreement (available at unfccc.int). Australian ratified the Paris Agreement in November 2016.

3 Article 4.1 of the Paris Agreement states 'In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognising that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.'

4 IPCC (2018), *Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, IPCC, Geneva, Switzerland (available at www.ipcc.ch).

5 A number of APPEA members have set net zero emissions targets.

6 Australia's contribution to the global climate change effort as set out here reflects the principle in Article 3.1 of the United Nations Framework Convention on Climate Change (UNFCCC) (see unfccc.int).

7 See sdgs.un.org for more information on the United Nations Sustainable Development Goals (SDGs) and for more information on SDG7 (Ensure access to affordable, reliable, sustainable and modern energy for all).

8 Natural gas-fired generation also has the advantage of providing long-duration energy firming. As the electricity market evolves, a portfolio of energy storage and firming options will be required which will include natural gas-fired generation, hydropower and batteries.

9 See also *Natural Gas: Essential for Australian Manufacturing* at www.appea.com.au.

10 See for example, Dr Alan Finkel, Australia's Chief Scientist, National Press Club Address, 12 February 2020 (available at www.chiefscientist.gov.au).

11 These technologies are already being deployed in commercial buildings in Australia (see cogentenergy.com.au and www.qantas.com.au for examples).

12 Recently there have been significant advances in ceramic fuel cells that run on natural gas, with a range of commercially available products now on the market.

13 See www.energyinformationaustralia.com.au for more.

14 Commonwealth of Australia (2017), *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future*, June, page 203 (available at www.energy.gov.au). Data from the report shows natural gas power generation technologies can reduce emissions by 68 per cent compared to current brown coal generation technologies and by 61 per cent compared to current black coal generation technologies.

15 For example, the International Energy Agency's *World Energy Outlook* has found the use of natural gas is expected to grow consistently over the outlook period (to 2040) under all scenarios. See www.iea.org for more information.

16 See CSIRO Energy (2019), *Whole of Life Greenhouse Gas Emissions Assessment of a Coal Seam Gas to Liquefied Natural Gas Project in the Surat Basin, Queensland, Australia* Final Report for GISERA Project G2 (report authors Heinz Schandl, Tim Baynes, Nawshad Haque, Damian Barrett and Arne Geschke), July (available at gisera.csiro.au).

17 See ERM (2020), Comparative Life Cycle Assessment: Browse and Scarborough (report authors Paul McConnell, Tim Grant) April (available at www.erm.com).

18 See APPEA (2020), *Industry Action on Emissions Reduction*, for more information. The report highlights through a series of case studies the range of the practical actions and initiatives undertaken by the oil and gas industry to reduce its greenhouse gas emissions. These actions encompass the entire oil and gas exploration and production lifecycle (see www.appea.com.au).

19 For further information, see www.globalccsinstitute.com.

20 Australia is already home to the largest commercial CCS project in the world, the Gorgon Carbon Dioxide Injection Project, located in northern Western Australia. The injection project is expected to capture between 3.4 and 4 million tonnes of CO_2-e per annum. It is expected to store more than 100 million tonnes over the life of the project. See australia.chevron.com for more information.

21 Alongside hydrogen production from renewable energy sources, where Australia also has significant opportunities.


appea
www.appea.com.au