appea the voice of australia's oil and gas industry

Submission

March 2018

Emissions Reduction Fund Safeguard Mechanism Consultation Paper, February 2018

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Introduction

Since 1959, the Australian Petroleum Production & Exploration Association (APPEA) has been the peak national body representing the upstream oil and gas exploration and production industry. APPEA has around 60 member companies that explore for and produce Australia's oil and gas. In addition, APPEA's more than 140 associate member companies provide a wide range of goods and services to the industry. Further information about APPEA can be found on our website, at www.appea.com.au.

APPEA welcomes the opportunity to provide comment on the *Emissions Reduction Fund Safeguard Mechanism Consultation Paper* (the Consultation Paper), released on 21 February 2018. This submission follows our May 2017 submission to the Review of Australia's Climate Change Policies[1] and our ongoing involvement in the development and review of the Emissions Reduction Fund Safeguard Mechanism (ERF-SM).

APPEA has been engaged in the greenhouse policy debate since the 1990s and has participated in every major consideration of national climate change policy approaches in Australia since that time.

APPEA is committed to working with governments as they develop policy responses to climate change. APPEA in February 2016 released a second edition of its *Climate Change Policy Principles* – a copy is at Attachment 1[2] – setting out the principles that APPEA considers should underpin Australia's policy response to climate change. These principles inform this submission in response to the Consultation Paper.

In addition to the APPEA submission, a number of APPEA members have made individual submissions to the Consultation Paper. This response should also be read in conjunction with submissions from individual APPEA members.

APPEA's submission addresses specific aspects of the Consultation Paper, focussing on those areas that are particularly important for the upstream oil and gas industry.

APPEA supports a national climate change policy that reduces greenhouse gas emissions at least cost and facilitates investment decisions consistent with an international price on carbon.

The Australian upstream oil and gas industry

Reliable, secure and competitively priced energy is crucial to our everyday lives in Australia. Oil and gas plays a key role in meeting many of our energy needs. Gas-fired electricity generation is a cost-effective technology which combines reliability and rapid ramp-up times to complement intermittent renewable energy technologies.

Gas is also an indispensable fuel for many industrial processes and a critical feedstock for industry that often cannot be substituted in producing fertilisers, cleaners, polymers and refrigerants. A large part of the manufacturing sector uses natural gas to generate electricity, heat and steam for industries, including alumina refining, food and beverage manufacturing, and grocery production[3].

[1] Available at www.appea.com.au/wp-content/uploads/2017/05/APPEA-Review-of-Climate-Change-Policies-Discussion-Paper-March-2017-Submission-050517.pdf.
[2] A copy of APPEA's *Climate Change Policy Principles* can also be found at www.appea.com.au/2016/02/appea-updates-climate-change-policy-principles.
[3] See www.appea.com.au/oil-gas-explained/benefits/gas-and-manufacturing.

Provided we have appropriate regulatory and policy settings, including through the outcomes of this consultation process, our abundant natural gas resources places Australia in an enviable position to deliver long-term, cleaner energy domestically and across the Asia-Pacific. Australia's liquefied natural gas (LNG) exports offer a cleaner energy source to a world with a steadily growing appetite for energy.

The stakes are high in realising the industry's full potential benefits.

However, future investment is not certain. The challenging market and increasingly challenging regulatory conditions facing the industry, both globally and in Australia, mean it is more important than ever to ensure the policy and regulatory framework facing the oil and gas industry in Australia remains competitive and encourages further exploration and development activity. This includes the application and administration of the ERF-SM.

Proposed approach for improving the Safeguard Mechanism: general comments

Greater use of Australian natural gas – in the domestic market, and in Asia – can significantly reduce greenhouse gas emissions.

Gas has an essential role to play in reducing emissions. In the home, natural gas is a cleaner fuel compared to the National Electricity Market (NEM) average. Gas-fired generators can be rapidly started making them complementary with intermittent renewable energy. Exporting gas as LNG will allow our Asian trading partners to reduce the emissions within their economies. More detail on these important issues can be found in our May 2017 submission to the Review of Australia's Climate Change Policies.

Proposed approach for improving the Safeguard Mechanism: comments on specific sections of the Consultation Paper

The sections below offer comments on specific sections of the Consultation Paper. In addition to these comments, APPEA would welcome the opportunity to meet with the Department to discuss these comments and to 'workshop', amongst other things, the development of default 'production variables' and default emissions-intensity values for calculating baselines.

Transitioning to calculated baselines

Under the changes proposed on page 4, all facilities on a reported baseline must apply for a calculated baseline in 2018-19 or 2019-20. Under proposed approach, facilities with an existing calculated baseline cannot reapply.

It is important the move to a calculated baseline for those companies using reported baselines be made as administratively simple as possible. Moving all remaining facilities to a calculated baseline in a relatively short period of time is likely to be resource-intensive and those facilities that have already gone through the calculated baseline process have incurred, in some cases, significant time and cost in having the baselines prepared, agreed and finalised.

In addition, consideration will need to be given to some optionality or grandfathering provisions for facilities that would be worse off under the transition from reported to calculated baselines[4].

APPEA notes the Consultation Paper on page 4 states:

> *Existing provisions to accommodate natural resource variability in the mining, oil and gas sectors would remain. Eligible facilities would retain two opportunities to apply for a calculated baseline before 2025.*

While APPEA welcomes the maintenance of these provisions, which were developed following extensive consultation and consideration during 2014 and 2015, and endorsed again in the 2017 Review of Australia's Climate Change Policies, it remains the case that the provisions:

- Have limits on their application:
  - To make use of these provisions, the relevant facility must satisfy all of the criteria set out in section 25(3) and, under section 25(4), the provisions only apply when the facility's covered emissions in respect of the first financial year to be covered by the calculated-emissions baseline determination have exceeded, or are reasonably expected to exceed, the baseline emissions number which would otherwise apply to the facility in that financial year.
  - In addition, under section 25(7) the provisions are not available if a benchmark-emissions baseline determination (considered further below) has been made in relation to the facility.
    - This is notwithstanding the fact that the criteria to which section 25 relates – the inherent emissions variability arising as a result of the properties of the natural resource or natural gas reserve – will not "disappear" if a benchmark-emissions baseline determination is made.

- Are only in place for a limited period of time:
  - Under section 25(9) the calculated-emissions baseline determination to which the application relates is to commence on a 1 July up to and including 1 July 2024 and therefore does not apply after that time.
    - This is notwithstanding the fact that the criteria to which section 25 relates – the inherent emissions variability arising as a result of the properties of the natural resource or natural gas reserve – will not "disappear" after 1 July 2024.
    - Indeed, as was explained in 2015 during the consultation period for the Rule, and during the consultation period for the 2017 Review, there are a number of examples of natural gas projects that will experience an increase in emissions as a direct result of production moving into a new reservoir which has different properties from the existing reservoir, and that this change is known now and will take place after 1 July 2024.

The existing provisions to accommodate natural resource variability in the mining, oil and gas sectors should be expanded and maintained as an enduring feature of the ERF-SM. The attractiveness of Australia for further investment in the oil and gas industry will be adversely affected if these provisions lapse.

[4] Part of the rationale for a switch from reported to calculated baselines appears to be that most facilities will experience increased production and an associated decline in emissions intensity. While this is true in many cases, some facilities in the industry may, when reaching the end of their operational life, experience a decline in production and increasing emissions intensity.

Simplifying calculated baselines

Implemented in a considered and low-cost way, in full consultation with the industry, the introduction of an option to use default production variables and emissions-intensity values could, for some facilities, represent a lower cost option to consider in moving to a calculated baseline.

APPEA therefore welcomes the inclusion of this proposal in the Consultation Paper. The comments that follow are designed to ensure the proposal is as efficient and effective as possible, for both the industry and for the Government.

With that in mind, APPEA and the upstream oil and gas industry consider extensive ongoing consultation will be required, commencing soon, to develop, 'workshop', agree and finalise the default production variables and associated emissions-intensity values to underpin the move by upstream oil and gas facilities to calculated baselines, and do so in a way that will ensure the approach agreed is relatively simple and low cost. APPEA and its members stand ready to participate constructively in this process.

APPEA offers the following comments on the proposed approach set out on pages 5-7 of the Consultation Paper:

- The choice of production variables and associated emissions-intensity values, is critical to the success of this proposal and uptake and use by the industry. As the Department would be aware from previous consultation processes, a wide variety of facilities exist across the industry, producing a range of products (crude oil, natural gas, condensate, LNG, liquefied petroleum gas (LPG), natural gas liquids, and so on) from a variety of reservoirs onshore and offshore that have varying characteristics and compositions and produced through a variety and usually bespoke set of facilities.
    - This means it is likely to be necessary to develop a range of production variables and associated emission intensities for a variety of reservoirs and facility components.
    - Prepared appropriately, this would result in a set of default production variables and default emissions intensities from which facilities could choose to match their production profile, reservoir characterises and facility configuration to ensure the baseline developed was appropriate for their circumstances.
    - If the process to develop and agree these production variables and emissions intensity is relatively simple, developing a number of variables and intensities should add little to the complexity of the approach but would result in a set of variables and intensities that is useful and relevant for the industry and consistent with the ERF-SM's policy rationale.
- Setting default production variables and emissions intensity values to reflect the median or average for a sector will mean a number of facilities, with intensity values below the average, will see little benefit in this default approach. While a facility specific approach remains open to them, they will face administrative costs to implement a facility specific approach that are not faced by facilities using the default production variables and emissions intensity values.
    - The balance between an administratively simple and equitable approach will be crucial to development of a set of default variables and intensities that are useful and supported by the industry.
    - The industry's experience with establishing averages of this kind (for example, under the former Jobs and Competitiveness Program) is that achieving this balance is challenging. A production weighted average may one way to approach this challenge, but the range of intensities that exist across production variables likely to be relevant

for the industry will remain challenging, and will need to be the subject of further consultation with the industry.

Annually updating baselines for actual production

The proposal to allow baselines to be updated to reflect actual production could be a useful way to reflect growth and change within an industry and allow for future growth in production.

While the proposed approach is supported, it is equally important this approach also allow for circumstances where variability or major change is a part of the facility's emissions profile over time, declining production is associated with an increase in emissions intensity and in situations where major shut-downs or maintenance periods affect production at particular facilities.

In particular, and as has been discussed extensively in previous consultations with the Department:

- For many oil and gas projects there will be emissions variability associated with the natural resources, anticipated prior to the establishment of projects, but that does not occur until several years afterward.
- Several member company projects include one or more additional resources (that is, a separate reservoir/s) that must be accessed during the life of the project to maintain production at design levels. Development of these reservoirs is, for example, fully incorporated in final investment decisions (FID), as well as in LNG supply agreements with overseas customers. In some cases, significant increases emissions will occur due to this subsequent reservoir development (for example, higher levels of CO_2 in the reservoir).
- The proposed approach does not appear to appropriately encompass situations where emissions are steadily growing over time (due to the inherent properties of the resource, for example, as greater impurities are found in the gas field towards the end of the field life).

The annual update provisions should allow for adjustments to take into account these factors, which are not covered by existing provisions and would not be accommodated by the changes proposed on page 7 of the Consultation Paper.

As a way to accommodate this variability, APPEA recommends, to complement the annual updated production baseline, the inclusion of an option to use a multi-year rolling average of production, and utilise the 'facility-specific intensity' value that has been approved under the calculated-baseline application which takes into consideration the impacts of gas variability.

This approach would recognise that while the annually updated production baseline is generally appropriate for gradual growth/decline conditions, a multi-year averaging option would assist in removing/lessening the volatility associated with circumstances where production might change significantly for any given year. This would avoid potential 'baseline swings' which could make administration and stewardship burdensome.

In addition, APPEA supports the annual (or multi-year) updating process applying to all facilities. The policy rationale for allowing for annual updates (to prevent baselines becoming out-of-date and to support business growth) apply equally to all facilities and not just to those industries that might be deemed as trade-exposed (noting that the ERF-SM legislative framework does not include a definition of trade-exposed industries).

Aligning reporting for businesses

APPEA supports the approach proposed on page 8 of the Consultation Paper to provide for facilities to consistently and regularly report their production data through the National Greenhouse and Energy Reporting System (NGERS).

That said, a number of inconsistencies and shortcomings in the treatment of energy production exist in NGERS, particularly the treatment of energy transformations, which can see the same production reported multiple times as an energy transformation, providing a distorted/inflated dataset under the NGERS approach.

Addressing these inconsistencies/shortcomings to ensure NGERS data more accurately and appropriately reflects energy production will be a critical element in ensuring the annual baseline adjustments are themselves accurate and appropriate. APPEA would welcome the opportunity to discuss this further with the Department and to work with the Department and the Clean Energy Regulator to improve this aspect of NGERS and to ensure it is 'fit for purpose' as the basis for the updating approach proposed in the Consultation Paper.

In addition, APPEA does not see a need to standardise the basis for determining annually updated production-adjusted baselines. A facility-specific approach remains appropriate for those facilities not using default production variables and default emissions intensities.

Mechanics and timing

APPEA notes the proposed approaches to updating baselines proposed on page 9 of the Consultation Paper.

Of the two approaches outlined, APPEA supports the update of baselines based on actual production (setting the baseline after the compliance year).

This approach would provide greater certainty to both the facility and the Clean Energy Regulator about ERF-SM compliance. As noted on page 9, facilities would know the emissions-intensity value used to calculate the baseline in advance and would be able to use internal production forecasts and track actual production to estimate their baseline in advance of knowing their baseline emissions number (which would be known when production data is available after the end of each compliance year).

New facilities post-2020

APPEA notes the Consultation Paper on page 9 states the Government will consider how the policy for new investments fits with the baseline setting approach for existing facilities once the approach for existing facilities is settled.

APPEA provided a submission in May 2016 on the draft *Emissions Reduction Fund: Safeguard mechanism Emissions Intensity Benchmark Guidelines* (the draft Guidelines), recommending against the benchmark approach proposed in the draft Guidelines, noting the ERF-SM must be designed and implemented in a way that enhances Australia's international competitiveness and does not impose costs on Australian industry, including the oil and gas industry, that are not faced by our competitors. With that in mind, APPEA recommended that emissions baselines for new

facilities and major expansions be determined from actual facility emissions data, once the facility has been fully commissioned and is operating under steady state conditions.

With that in mind, the proposals in this Consultation Paper supersede the proposals contained in the April 2016 draft Guidelines, by providing a mechanism, the annual adjustment to baselines based on actual production and the use of default production variable and default emissions intensities, that could be applied to all facilities, including new facilities and significant expansions post-2020. Such an outcome would remove the need for a complex, costly and resource-intensive benchmarking process, ensuring all facilities are treated equitably, and in a consistent manner under the new approach proposed in this Consultation Paper.

APPEA recommends the development of benchmarks for new facilities post-2020 is replaced by the approach settled through this consultation process and that and all facilities, both existing and new, be treated in the same way.

Other issues: requirement to include electricity generation as an output variable for self-generators without any grid connection or ability to import or export electricity from the facility

In a number of LNG facilities in northern and western Australia, section 5(10) of the Safeguard Mechanism Rule means that the calculated baseline application will apply *output variables* as *production variables*, and include LNG production as the *primary production variable*. However, the definition of output variable in section 4, paragraph (b) requires that output variables in this case include "electricity generation".

Each of the LNG facilities located in northern and western Australia are self-generators of electricity, are not grid connected (with no plans to be so in future), and will therefore not import or export any electricity. Accordingly, all electricity generation could be appropriately attributed to the production of LNG, simplifying baseline calculations for the facility (both *calculated* and *production-adjusted* baselines). Such adjustment to the Rule could be accommodated with minor modification to either section 5(10), or the output variable definition at paragraph (b).

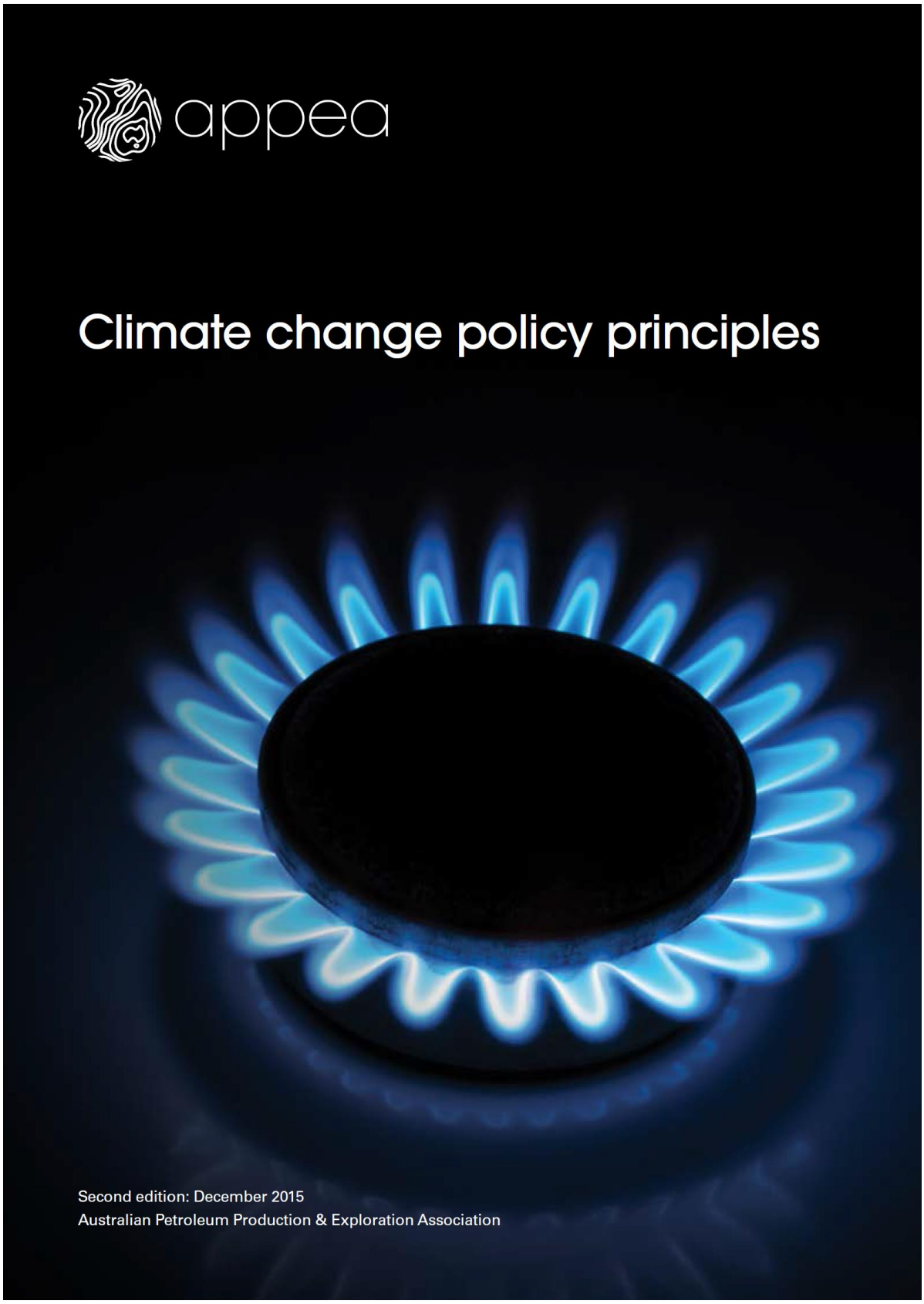
Next Steps

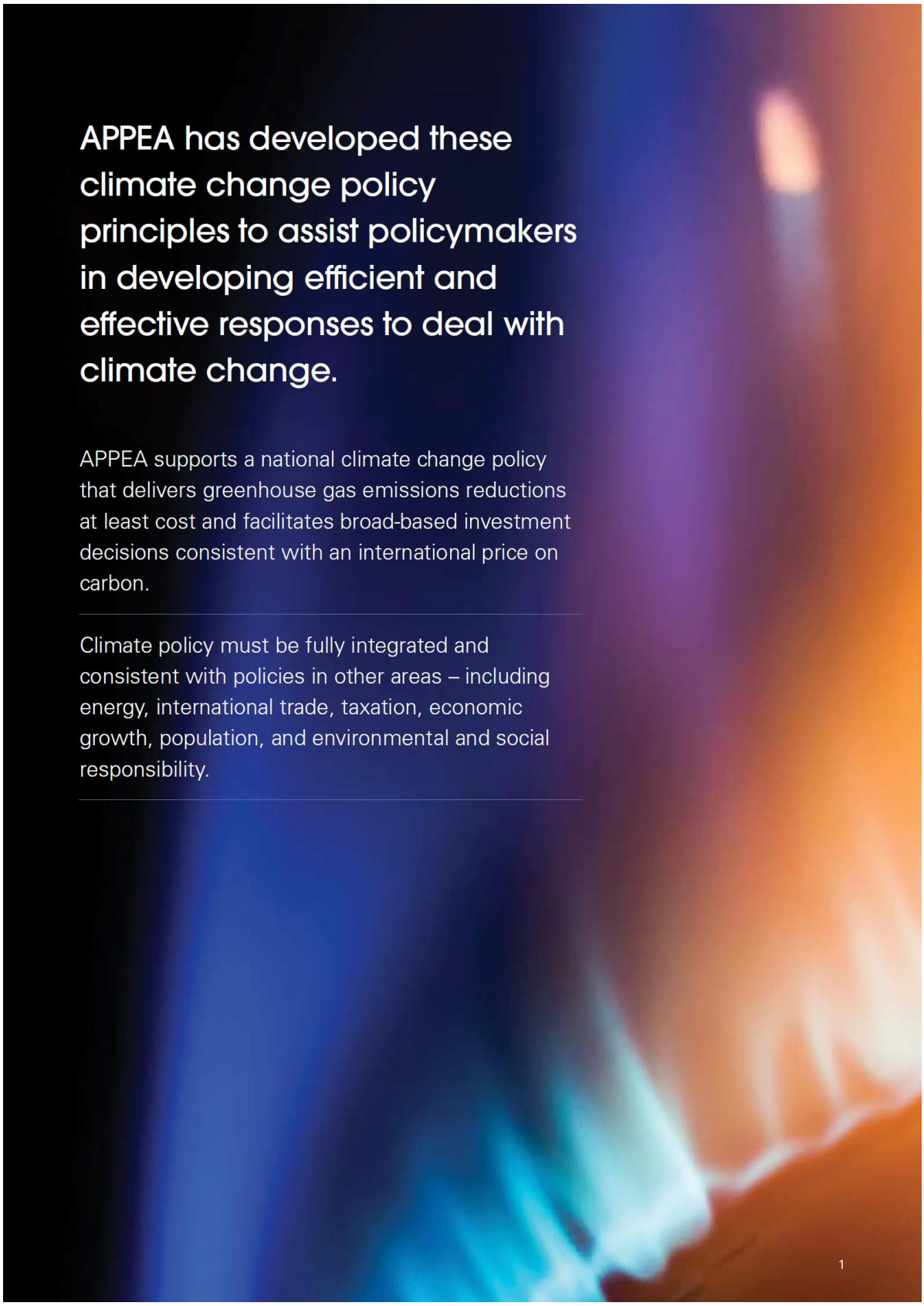
As noted above, APPEA looks forward to further consultation with the Department to consider the comments made in this submission, to 'workshop' proposed production variables and emissions intensity and further discuss proposed amendments to the *National Greenhouse and Energy Reporting (Safeguard Mechanism Rule) 2015* and the *National Energy and Greenhouse Reporting Regulations 2008*.

APPEA notes the Government is working toward having any changes take effect for the 2018-19 compliance year.

Beyond this current consultation on the ERF-SM, APPEA looks forward to further consultation on the other issues arising from the 2017 Review of Australia's Climate Change Policies, including to pursue, as a priority, a determination of when and how international units can be used and developing a long-term emissions reduction strategy.

ATTACHMENT 1: APPEA *CLIMATE CHANGE POLICY PRINCIPLES*




APPEA has developed these climate change policy principles to assist policymakers in developing efficient and effective responses to deal with climate change.
APPEA supports a national climate change policy that delivers greenhouse gas emissions reductions at least cost and facilitates broad-based investment decisions consistent with an international price on carbon.
Climate policy must be fully integrated and consistent with policies in other areas – including energy, international trade, taxation, economic growth, population, and environmental and social responsibility.
1

Policy principles

1. International engagement is crucial.

Australia should continue to engage the international community to pursue environmentally effective and economically efficient climate change policies[1].

An international policy framework should:

- Promote international participation.
- Minimise the costs and distribute the international burden equitably.
- Be comprehensive in its coverage.
- Allow for the unrestricted flow of credible emissions units between international jurisdictions.
- Be underpinned by transparent reporting arrangements.

2. Climate change and energy policies must be integrated and harmonised.

Australia's policy response should seek to:

- Deliver lowest cost greenhouse gas emissions abatement through an appropriately designed mechanism that provides an economy-wide transparent price 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.
- Avoid penalising early movers who have previously implemented abatement measures.
- Support research into low-emissions technologies, and development and deployment of such technologies.

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.

Polices inconsistent with the principles should be phased out and additional measures should only apply to sectors of the economy that are not covered by the price signal on greenhouse gas emissions.

3. Climate change adaptation strategies are necessary.

Australia must:

- Continue to support international and national modelling to provide location-specific climate change forecasts.
- Develop risk-management strategies to reflect likely impacts of climate variability.

4. Climate policy must not compromise national or global economic development or energy security.

Australia's policy response should recognise that:

- Increasing global population and urbanisation generate 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 in the transition to a low-carbon economy – switching to gas could halve the emissions from the Australian electricity sector – and if solar and wind power are to deliver genuine emissions reductions they must have gas-fired back-up.

1 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/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf). In determining Australia's differentiated responsibilities and capabilities, consideration should be given to matters such as Australia's economic growth and structure, population growth, energy production and energy use.

Australian LNG exports can make an important contribution to reducing global greenhouse emissions intensity.

The global challenge

Throughout the world, policymakers are implementing a variety of regulatory responses to reduce greenhouse gas emissions and mitigate the risks of global climate change.

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.[2]

The multilateral United Nations Framework Convention on Climate Change (UNFCCC) has elicited a global commitment to holding the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels and to pursuing efforts to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels.[3]

APPEA's stance on climate change

Societies around the world will continue to face two major, interdependent challenges:

- Maintaining and expanding affordable, secure energy supplies to meet growing consumer demand.
- Addressing the social and ecological risks posed by rising greenhouse gas emissions and climate change.

Managing greenhouse gas emissions and meeting growing energy demand requires action by individuals, companies, and governments. Making genuine progress requires an integrated set of solutions. This includes increasing energy efficiency, advancing lower carbon energy technologies, and supporting effective national and international policies.

Reliable and competitively priced energy underpins economic growth and stability, and is crucial to raising living standards in both developing and advanced nations. Therefore, policies aimed at reducing greenhouse gas emissions must do so at the lowest possible cost.

2 IPCC (2014), Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland (available at www.ipcc.ch).

3 UNFCC (2015), Adoption of the Paris Agreement, 12 December (available at unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf).

Natural gas: integral to a low-carbon economy

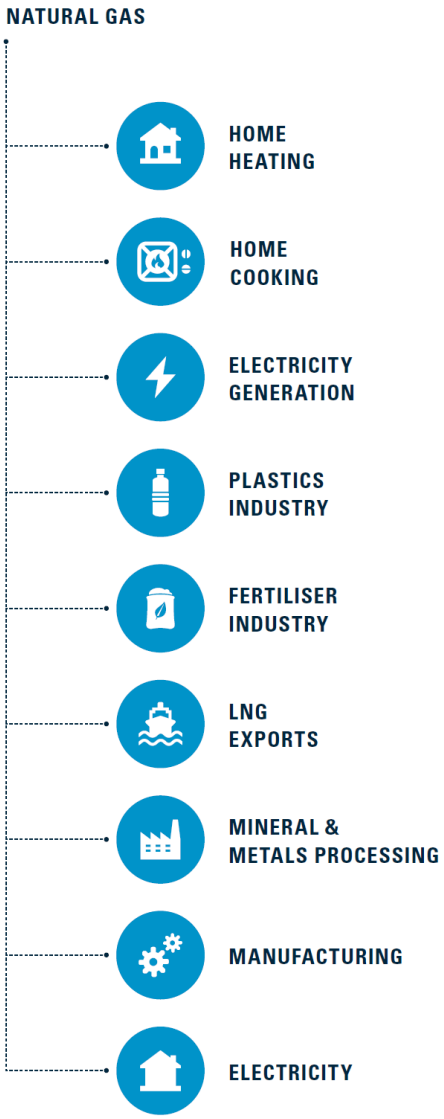
Natural gas is a lower-carbon form of energy suitable for electricity generation, industry and households.

Increasing its use can deliver immediate and substantial carbon savings. Simply switching from coal to natural gas can reduce greenhouse gas emissions by 40-50% and by as much as 75% in some circumstances.[4]

Australia's gas industry, domestically and through our exports of liquefied natural gas (LNG), contributes substantially to the economic development of the nation and reduces global greenhouse gas emissions.

Natural gas is a highly flexible fuel:

- Natural gas is commonly used to generate electricity, heat and steam for industries, including alumina refining, food and beverage manufacturing, and grocery production.
- 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 in co- generation and tri-generation. These technologies can provide electricity, heating and cooling at very high thermal efficiencies approaching 80%.[5]
- 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%.[6]
- Natural gas is also a critical feedstock for industry that often cannot be substituted in producing fertilisers, cleaners, polymers and refrigerants.



4 Australian Council of Learned Academies (2013), Engineering Energy: Unconventional Gas Production, June (available at www.acola.org.au/index.php/projects/securing-australia-s-future/project-6). While the emissions benefit is lower when compared to ultra supercritical coal fired power generation, as the Council has noted *"gas-fired electricity generation will generally replace existing coal-fired boilers that are less efficient subcritical facilities"*.

5 These technologies are already being deployed in commercial buildings in Australia (see www.urbanenergy.com.au/projects, www.originenergy.com.au/files/Origin_Coca_Cola_place_FactSheet.pdf, www.cityofsydney.nsw.gov.au/vision/towards-2030/sustainability/carbon-reduction/trigeneration and www.qantas.com.au/travel/airlines/electricity/global/en#power for examples).

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

Reducing emissions

The Australian Council of Learned Academies has found using gas to provide more baseload and peak electrical power generation in Australia – in scenarios of higher use of both renewables and gas – would deliver substantial emissions reductions.

This would reduce the Australian electricity generation sector's emissions by between 54 Mtpa-103 Mtpa CO2-e (million tonnes per annum, carbon dioxide equivalent) by 2030 – a reduction of 27% to 52% from the base case of 197 Mtpa CO2-e in 2012.

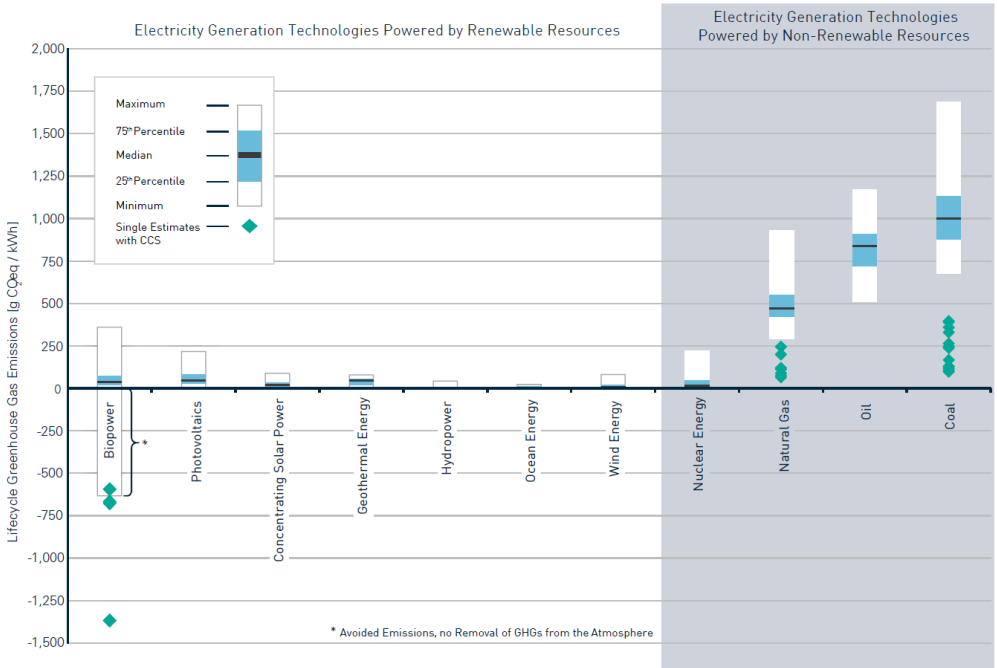
Other environmental benefits

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. This is particularly important in many Asian countries that are importing Australian LNG or considering imports.

Baseload power is the level of generation needed to meet forecast minimum demands. Baseload power plants must run constantly and at predictable levels. Peaking power is power that can be brought online quickly in periods of peak demand.
Intermittent power is any source of energy (such as solar and wind) that is not continuously available.

The range of life cycle emissions for electricity generation (tonne CO2-e/MWh) from a range of energy sources



	Biopower	Photovoltaics	Concentrating Solar Power	Geothermal Energy	Hydropower	Ocean Energy	Wind Energy	Nuclear Energy	Natural Gas	Oil	Coal
Count of Estimates	222(+4)	124	42	8	28	10	126	125	83(+7)	24	169(+12)
Count of References	52(+0)	26	13	6	11	5	49	32	36(+4)	10	50(+10)

Source: IPCC (2011)[7]

7 IPCC (2011), Summary for Policymakers. In: IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlomer, C. von Stechow (eds)], Cambridge University Press, Cambridge, UK and New York, NY, USA (available at srren.ipcc-wg3.de/report/IPCC_SRREN_SPM.pdf).

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 Moomba gas plant in South Australia.

Carbon capture and storage (CCS)

Greenhouse gas storage is seen as one of the pathways to the continued use of fossil fuels in a low-carbon economy.

The global oil and gas industry is leading the world in the practical deployment of this technology. Norway's Statoil has developed large carbon capture and storage (CCS) projects at Sleipner and Snøhvit. In Canada, Shell has developed the Quest CCS project.

In Australia, the oil and gas industry has been at the leading edge of researching and deploying greenhouse gas storage technologies.

The industry instigated significant research efforts into greenhouse gas storage in the late 1990s through the Australian Petroleum Cooperative Research Centre (which has continued through the CO2CRC Limited).

Since that time, several hundred million dollars has been invested in assessing large greenhouse storage projects.

The Gorgon Carbon Dioxide Injection Project[8] – soon to be commissioned – is the world's largest greenhouse gas mitigation project undertaken by industry.

8 See www.chevronaustralia.com/our-businesses/gorgon/carbon-dioxide-injection for more information.

APPEA supports a national climate change policy that delivers greenhouse gas emissions reductions at least cost and facilitates broad-based investment decisions consistent with there being an international price on carbon.

APPEA climate change policy: key points

1. International engagement is crucial.
2. Climate change and energy policies must be integrated and harmonised.
3. Climate change adaptation strategies are necessary.
4. Climate policy must not compromise national or global economic development or energy security.

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.
- Expand the use of natural gas in the domestic economy, with consequent reduction in the emissions intensity of the Australian economy, for example, in electricity generation and resource processing.
- Promote development of lower emissions technologies, such as high-efficiency electricity generation and greenhouse gas storage.
- 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.

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 80 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 more than 230 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.

www.appea.com.au