

2 September 2019

Dr Tom Hatton  
Chairman  
Environment Protection Authority  
Locked Bag 10  
JOONDALUP DC WA 6919

Dear Dr Hatton

**RE: BACKGROUND PAPER ON GREENHOUSE GAS ASSESSMENT GUIDANCE: APPEA COMMENTS**

The Australian Petroleum Production & Exploration Association (APPEA) is the peak national body representing upstream oil and gas explorers and producers active in Australia. APPEA's member companies account for more than 90 per cent of Australia's petroleum production. Further information about APPEA can be found on our website, at [www.appea.com.au](http://www.appea.com.au).

## INTRODUCTION

APPEA welcomes the opportunity to provide comments on the EPA's *Background paper on greenhouse gas assessment guidance* (the Background paper), which follow on from our discussions during the various EPA Stakeholder Reference Group (SRG) meetings held in recent years.

They also follow on from our 1 February 2019 comments (see [Attachment 1](#)) on a draft version of the previous assessment guidelines (see [Attachment 2](#)) which were subsequently released on 7 March 2019 and withdrawn on 14 March 2019.

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

APPEA is also a member of the Australian Industry Greenhouse Network (AIGN), a network of industry associations and individual businesses that contribute to the climate change policy debate and see value in joint industry action on climate change policy issues in order to promote sustainable industry development<sup>1</sup>. APPEA has contributed to the AIGN submission to the Background paper.

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

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<sup>1</sup> See [www.aign.net.au](http://www.aign.net.au) for further information.

## **BACKGROUND PAPER ON GREENHOUSE GAS ASSESSMENT GUIDANCE: GENERAL COMMENTS**

The effective and efficient management of greenhouse gas emissions is an issue which APPEA and its members takes very seriously and APPEA and its members have been engaged constructively in the development of climate change policy for more than 25 years.

As part of this, APPEA is committed to working with governments and relevant agencies 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 3<sup>2</sup> – setting out the principles that APPEA considers should underpin Australia's policy response to climate change. These principles inform APPEA's comments on the Background paper.

**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.**

**As will be considered in more detail below, this means APPEA supports the Australian Government leading on climate change policy responses, as the signatory to Australia's Paris Agreement commitments.**

**It also means duplicative and inconsistent requirements should not be imposed through the actions of a single regulatory agency (the EPA) in a single jurisdiction (Western Australia) to only a limited number of large projects through the *Environment Protection Act 1986* (WA) and the associated assessment guidelines.**

## **THE WESTERN AUSTRALIAN UPSTREAM OIL AND GAS INDUSTRY**

It is also important to place our views on the issues raised by the EPA in the Background paper within the context of the current state and potential future contribution of the upstream oil and gas industry to the Western Australian economy and to the welfare of all Western Australians.

Further information on the key role the Western Australian oil and gas industry plays in providing reliable, secure, cleaner and competitively priced energy can be found at Attachment 4.

## **THE NEED FOR A NATIONAL APPROACH**

As noted above, APPEA supports a national approach to greenhouse gas emissions reduction policies, which are the responsibility of the Australian Government as the signatory to Australia's Paris Agreement commitments.

**This also means duplicative, inconsistent and impractical requirements should not be imposed through the *Environment Protection Act 1986* (WA) and the associated assessment guidelines.**

In particular, the role flagged by the EPA in March 2019 to involve itself directly in the regulation of the greenhouse gas mitigation obligations of only a small subset of projects (those requiring

<sup>2</sup> 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](http://www.appea.com.au/2016/02/appea-updates-climate-change-policy-principles).

assessments under the Act) by one regulatory agency (the EPA) in one jurisdiction (Western Australia) – as was the case in the technical guidance document withdrawn in March – does not appropriately acknowledge the continuing role the present (through the Climate Solutions Package<sup>3</sup> (CSP)) and any future Australian Government (that may have a different policy approach) is and will play in managing emissions.

The approach flagged for the EPA in March 2019 is duplicative, inconsistent and impractical. It is not complementary to any national approach. Such an approach can only cause confusion and regulatory delays in having projects assessed and approved.

In addition to opportunities to pursue emissions reduction opportunities through the Emissions Reduction Fund<sup>4</sup> (the ERF, soon to become the Climate Solutions Fund), projects with annual emissions above 100,000 tCO<sub>2</sub>-e are subject to the ERF's safeguard mechanism<sup>5</sup>. The safeguard mechanism requires facilities captured by it to keep their emissions within established baselines. This is to ensure emissions reductions are not displaced significantly by a rise in emissions elsewhere in the economy.

As a package of measures, the CSP has been designed, according to the Australian Government, to meet its Paris Agreement commitments. In addition, the national approach to meeting Australia's commitments to 2030 and beyond will be the subject of formal review during 2020 (and 2025 and every five years thereafter) and is also subject to regular review by the Climate Change Authority. For example, the latest review of the Australia's approach to meeting its emissions reduction commitments was commenced by the Authority in July 2019 and is due to report to the Australian Government by the end of 2019<sup>6</sup>.

In addition, WA government is developing its climate policy and work is underway through the Department of Water and Environmental Regulation (DWER) on the formulation of this policy<sup>7</sup>, which is set for release in 2020. APPEA has commenced discussions with DWER on the development of this policy and will be an active and constructive participant in the DWER consultation process when it commences later in 2019.

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<sup>3</sup> See [www.environment.gov.au/climate-change/climate-solutions-package](http://www.environment.gov.au/climate-change/climate-solutions-package) for more information. The Package is a \$3.5 billion investment to deliver on Australia's 2030 Paris climate commitments. According to the Australian Government's website, the Package contains a number of features, including a \$2 billion Climate Solutions Fund to reduce greenhouse gases across the economy through the existing Emissions Reduction Fund, giving farmers, small businesses and Indigenous communities the chance to improve the environment and benefit from new revenue opportunities, investments in an expansion of the Snowy Mountains Scheme and a second interconnector, Marinus Link, between Victoria and Tasmania, helping households and businesses improve energy efficiency and lower energy bills, developing a National Electric Vehicle Strategy and green and clean local environments by supporting local communities.

<sup>4</sup> The ERF is a scheme that aims to provide incentives for a range of organisations and individuals to adopt new practices and technologies to reduce their emissions. It is enacted through the *Carbon Credits (Carbon Farming Initiative) Act 2011*, the *Carbon Credits (Carbon Farming Initiative) Regulations 2011* and the *Carbon Credits (Carbon Farming Initiative) Rule 2015*. A number of activities are eligible under the scheme and participants can earn Australian carbon credit units (ACCUs) for emissions reductions. One ACCU is earned for each tCO<sub>2</sub>-e stored or avoided by a project. ACCUs can be sold to generate income, either to the government through a carbon abatement contract, or in the secondary market. See [www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund](http://www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund) for more information.

<sup>5</sup> See [www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund/the-safeguard-mechanism](http://www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund/the-safeguard-mechanism) for more information.

<sup>6</sup> See [climatechangeauthority.gov.au/updating-authoritys-advice-meeting-australias-paris-agreement-commitments](http://climatechangeauthority.gov.au/updating-authoritys-advice-meeting-australias-paris-agreement-commitments) for more information. Through this process, the Authority will be updating its previous advice to Government on policies to meet Australia's greenhouse gas emissions reduction commitments under the Paris Agreement. According to the Authority, "... the updated advice will seek to provide recommendations that ensure Australia is well-placed to meet its 2030 emissions target and that are consistent with meeting subsequent targets with enhanced ambition that put Australia on a path to net zero emissions, consistent with the Paris Agreement framework."

<sup>7</sup> See [www.mediastatements.wa.gov.au/Pages/McGowan/2018/12/McGowan-Government-to-develop-new-climate-change-policy.aspx](http://www.mediastatements.wa.gov.au/Pages/McGowan/2018/12/McGowan-Government-to-develop-new-climate-change-policy.aspx) for more information.

As with the State Government's 2012 policy, the 2020 policy will be drafted within the context of the current state of climate policy development and application in Australia, up-to-date scientific information and understanding, recognise the role of the Australian Government and its international obligations and ensure the Western Australia Government's approach is complementary to the national approach, recognising it is the Australian Government that has the lead role in mitigation policy in Australia.

On 28 August 2019, the Western Australia Government released<sup>8</sup> a statement on its *Greenhouse Gas Emissions Policy for Major Projects under Assessment by the EPA*. The statement describes the broad approach that the Government will take into consideration of new proposals and project expansions that would emit greenhouse gas emissions in Western Australia, when they are assessed under the *Environmental Protection Act 1986*.

Importantly, the statement notes

*The Government understands that national and international policies are constantly evolving, and this policy seeks to complement rather than duplicate them.*

And further notes

*The Policy acknowledges existing obligations for large energy users and designated facilities under the National Greenhouse and Energy Reporting Act 2007 and the Safeguard Mechanism.*

**Given this, APPEA recommends the EPA postpone releasing a revised guidance on the assessment of greenhouse gas emissions until such time as the WA Government has determined its State Climate Change Policy which – acknowledging the EPA's independence – will provide vital policy context for the EPA's approach.**

**When it is released, acknowledging the actions that are underway at a national and a State level, and the duplicative, inconsistent and impractical nature of any involvement by the EPA, the EPA's best and most appropriate action is to ensure that any projects subject to assessment are captured by the Australian Government's ERF safeguard mechanism and are a part of the State Government policy approach.**

**Ensuring that is the case, and appropriately acknowledging this reality, will meet the EPA's assessment obligations, as outlined on 3-6 of the Background paper.**

**The combination of national and State approaches also ensures the EPA's self-assigned objective, set out on page 5 of the Background paper, "... to mitigate greenhouse gas emissions and consequently minimise the risk of contributing to climate change ..." is met through these approaches and does not require additional duplicative, inconsistent and impractical impositions by the EPA itself.**

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<sup>8</sup> See [www.mediastatements.wa.gov.au/Pages/McGowan/2019/08/State-Government-details-emissions-policy-for-major-projects.aspx](http://www.mediastatements.wa.gov.au/Pages/McGowan/2019/08/State-Government-details-emissions-policy-for-major-projects.aspx) for more information.

**BACKGROUND PAPER ON GREENHOUSE GAS ASSESSMENT GUIDANCE: SPECIFIC COMMENTS**

The following sections provide a number of comments on specific areas of the Background paper. In doing so, they repeat a number of the issues raised in our 1 February 2019 submission on the (withdrawn) March 2019 guidance document.

Further comments are also contained in APPEA's 1 February 2019 submission which, as noted above, can be found at [Attachment 1](#).

**Background and the role of the EPA (pages 3-6)**

The Background paper provides a significant amount of background on the operations and approach of the EPA which, while informative, largely serve to highlight the importance of a comprehensive and robust national policy response as opposed to a proposal to only target a minority of large emitters in a single jurisdiction through an environmental impact assessment process.

While, as noted above, APPEA is firmly of the view that greenhouse gas emissions reduction policies should be imposed through national approaches, are the responsibility of the Australian Government and should therefore not be imposed under the *Environment Protection Act 1986*, APPEA is generally supportive of project proponents having to outline anticipated level of greenhouse gas emissions, and consideration of how to minimise those emissions, as part of the environmental impact assessment.

**Greenhouse gas emissions, trends and regulations (pages 7-9)**

In a similar way, this section of the Background paper provides background material that, while informative, also largely serves to highlight the importance of a comprehensive and robust national policy response as opposed to a proposal to only target a minority of large emitters through the environmental impact assessment process.

In particular, and as noted above, the combination of national and state approaches means that the self-generated requirement set out on page 9, that

*... if the EPA considers that an environmental risk is adequately regulated by statute or government policy, then it may conclude that no additional advice on protection is merited through an EPA assessment ...*

has been met and no additional EPA advice is required, other than to acknowledge that such obligations exist for the project under assessment and can be referred to by the EPA.

**Reporting**

As has been discussed previously, there is no policy justification for EPA's continued attempts to require reporting of greenhouse gas emissions outside of the National Greenhouse and Energy Reporting System (NGERS).

Significant levels of data, including at a facility level, are available to the WA Government and can be made available to EPA through the data sharing provisions of the *National Greenhouse and Energy Act 2007* (NGER Act).

For example, the Climate Change Authority, in its 2018 review of NGER Act<sup>9</sup> found, on page 38  
“A state or territory is permitted to publish emissions and energy information collected under the reporting scheme if required under a law of the state or territory.”

Rather than propose a separate and duplicative reporting regime, APPEA recommends the EPA (and DWER) discuss with the Department of the Environment and Energy and the Clean Energy Regulator access to the data required by the EPA and public disclosure arrangements.

## BACKGROUND INFORMATION: THE KEY ROLE NATURAL GAS PLAYS IN REDUCING GLOBAL GREENHOUSE GAS EMISSIONS

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 that has seen the emissions intensity of electricity generation in Western Australia lower than 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 from their economies<sup>10</sup>.

### Natural gas: integral to a low carbon Australian economy

Australia could generate significant additional national economic, environmental and social benefits through greater use of its substantial natural gas resources.

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

These outcomes are possible because, as data on page 203 of the *Independent Review into the Future Security of the National Electricity Market – Blueprint for the Future* (the Final Report) shows<sup>11</sup>, available natural gas power generation technologies can reduce greenhouse gas emissions by 68 per cent compared to current brown coal generation technologies and 61 per cent compared to current black coal generation technologies.

This is illustrated in Figure 1, which shows, using data from page 203 of the Final Report, the significantly lower greenhouse gas emission associated with the use of gas-fired power generation compared to the use of other conventional fuels.

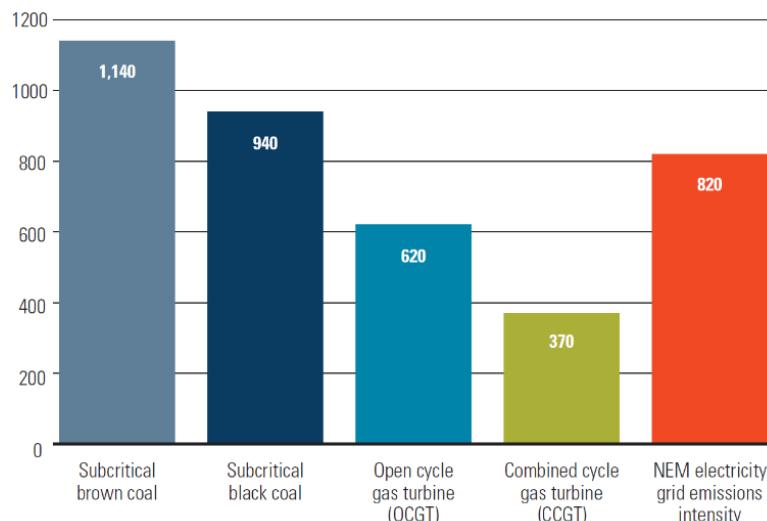
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<sup>9</sup> Climate Change Authority (2018), *Review of the National Greenhouse and Energy Reporting Legislation Final Report*, 21 December, page 38 (available at [climatechangeauthority.gov.au/review-national-greenhouse-and-energy-reporting-legislation-final-report](http://climatechangeauthority.gov.au/review-national-greenhouse-and-energy-reporting-legislation-final-report)).

<sup>10</sup> See *Gas Vision 2050* for more information. *Gas Vision 2050* was developed by Australia’s peak gas industry bodies and demonstrates how gas can continue to provide Australians with reliable and affordable energy in a low-carbon energy future. See [www.appea.com.au/media\\_release/gas-vision-2050](http://www.appea.com.au/media_release/gas-vision-2050) and [www.appea.com.au/wp-content/uploads/2017/03/GasVision2050\\_March2017.pdf](http://www.appea.com.au/wp-content/uploads/2017/03/GasVision2050_March2017.pdf) for more information.

<sup>11</sup> See [www.energy.gov.au/publications/independent-review-future-security-national-electricity-market-blueprint-future](http://www.energy.gov.au/publications/independent-review-future-security-national-electricity-market-blueprint-future) for more information.

**Figure 1. Estimated Operating Emissions for New Power Stations (kg CO<sub>2</sub>-e/MWh)**



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

The potentially growing role of natural gas considered in these reports reflects the role gas could play as a lower-emissions and cost effective generation technology, both in replacing coal-fired generation and in complementing the growth in renewable technologies.

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.

Experience in the United States demonstrates how quickly emissions from the generation sector can be cut by fuel switching. Data from the US Government Energy Information Administration (EIA)<sup>12</sup> shows energy-related emissions in the US in the first six months of 2016 were at their lowest level since 1991, having fallen about 13 per cent from their peak in 2007. Amongst other reasons, this was possible because the US is developing its abundant natural gas resources. More recently, the EIA found<sup>13</sup> emissions from power generation are expected to fall by over 2 per cent in 2019. The EIA noted:

*Although the electric power sector is using more natural gas, EIA does not expect the increase in natural gas emissions in 2019 to offset the decrease in coal emissions because natural gas-fired electricity generation is less carbon-intensive than coal-fired electricity generation.*

We have a similar opportunity, both in Western Australia and in Australia more broadly. If the industry is able to develop them, there are sufficient natural gas resources to underpin a historic shift to a lower emissions generation sector, across Australia, including in Western Australia.

The increased use of natural gas also has several additional environmental benefits, such as:

<sup>12</sup> See [www.eia.gov/todayinenergy/detail.php?id=28312](http://www.eia.gov/todayinenergy/detail.php?id=28312) and [www.eia.gov/todayinenergy/detail.php?id=30712](http://www.eia.gov/todayinenergy/detail.php?id=30712) for more information.

<sup>13</sup> See [www.eia.gov/todayinenergy/detail.php?id=40094](http://www.eia.gov/todayinenergy/detail.php?id=40094) for more information.

- Reduced emissions of fine particulates.
- Reduced emissions of sulphur dioxide (an important contributor to smog and acid rain) and nitrogen oxides.
- Significantly lower demand for water for power station cooling.

**Much greater use of Western Australia's extensive gas resources will be crucial in meeting the challenge of significantly reducing global greenhouse gas emissions at least cost whilst enhancing Western Australia's economic and export performance.**

### Natural gas: integral to low carbon economies in Asia

In considering Australia's climate change policy responses both in the period to 2030, and beyond, and Australia's existing and future contribution to global emissions reduction efforts, it is important to acknowledge the positive contribution Australia's LNG exports – including from Western Australia – make now and will increasingly make to that global effort.

Australia's LNG industry is in a unique position to contribute substantially to the economic development of the nation and to reduce greenhouse gas emissions. 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.

As the International Energy Agency (IEA) found in its *2018 World Energy Outlook* (2018 WEO)<sup>14</sup>, the use of natural gas is expected to grow consistently over the Outlook period (to 2040) under all scenarios. For example, in its 'New Policies Scenario'<sup>15</sup> (the central scenario in the 2018 WEO) the IEA forecasts global natural gas demand to grow by around 45 per cent over the Outlook period. Average annual growth of 1.6 per cent means natural gas increases its share in global primary energy demand from 22 per cent today to 25 per cent in 2040. In the 'Sustainable Development Scenario'<sup>16</sup>, gas use plateaus from the 2030s, but the IEA notes, as a clean and flexible fuel, gas still sees its share increasing.

The IEA also expects LNG exports will overtake pipeline gas as the main form of long-distance trading, accounting for more than 60 per cent of inter-regional trade by 2040. This outlook is positive for Australia in general and Western Australia in particular. Most of the growing demand for natural gas will come from China (as part of a long-term and deliberate coal-to-gas

<sup>14</sup> See [www.iea.org/weo](http://www.iea.org/weo) for more information.

<sup>15</sup> According to the IEA, the 'New Policies Scenario' "... provides a measured assessment of where today's policy frameworks and ambitions, together with the continued evolution of known technologies, might take the energy sector in the coming decades. The policy ambitions include those that have been announced as of August 2018 and incorporates the commitments made in the Nationally Determined Contributions under the Paris Agreement, but does not speculate as to further evolution of these positions. Where commitments are aspirational, this scenario makes a judgement as to the likelihood of those commitments being met in full. It does not focus on achieving any particular outcome: it simply looks forward on the basis of announced policy ambitions."

<sup>16</sup> The 'Sustainable Development Scenario', introduced for the first time in 2017, "... starts from selected key outcomes and then works back to the present to see how they might be achieved. The outcomes in question are the main energy-related components of the Sustainable Development Goals, agreed by 193 countries in 2015: Delivering on the Paris Agreement. The Sustainable Development Scenario is fully aligned with the Paris Agreement's goal of holding the increase in the global average temperature to "well below 2 °C". Achieving universal access to modern energy by 2030. Reducing dramatically the premature deaths due to energy-related air pollution. The Sustainable Development Scenario sets out the major changes that would be required to deliver these goals simultaneously."

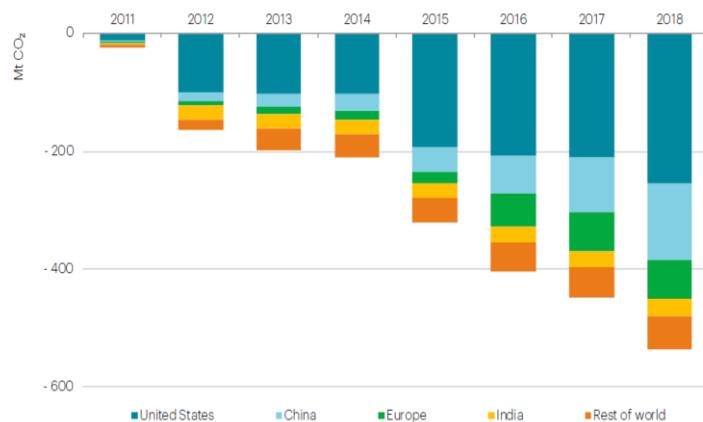
switching program<sup>17</sup>), India and other countries in Asia which are turning more and more to natural gas to help improve urban air quality.

More recently, the IEA's July 2019 report *The Role of Gas in Today's Energy Transitions*, examined the role of fuel switching, from coal to natural gas, to reduce greenhouse gas emissions and air pollutants globally<sup>18</sup>. The report found that since 2010, coal-to-gas switching has saved around 500 million tonnes of CO<sub>2</sub> (see Figure 2 below) – the equivalent of putting an extra 200 million electric vehicles on the road running on zero-carbon electricity over the same period. The report also highlighted a significant opportunity in the global electricity generation sector to reduce emissions by switching from coal-fired power plants to gas-fired power plants, which presented "a potential quick win for emissions reductions". The report found:

*There is potential in today's power sector to reduce up to 1.2 gigatonnes of CO<sub>2</sub> emissions by switching from coal to existing gas-fired plants, if relative prices and regulation support this potential.*

To put this opportunity in perspective, the potential for emission reductions across the global economy of 1.2 gigatonnes is more than double Australia's total annual emissions and more than thirteen times Western Australia's total annual emissions in 2017<sup>19</sup>.

**Figure 2. CO<sub>2</sub> savings from coal-to-gas switching by region compared with 2010**



Note: Mt CO<sub>2</sub> = million tonnes carbon dioxide. Coal-to-gas switching includes emissions reductions in sectors where the market share of coal decreased, and the market share of gas increased within each region. The baseline increase in emissions assumes no improvement in the carbon intensity of energy or the energy intensity of gross domestic product (GDP) since 2010. Savings are calculated as those which occur compared to 2010.

Source: International Energy Agency (2019)

In a Western Australian context, a 2008 (updated in 2011) study by WorleyParsons<sup>20</sup>, for example, compares lifecycle greenhouse gas emissions of Australian LNG exports from the North West Shelf Project with Australian east coast black coal exports in terms of lifecycle

<sup>17</sup> For an overview of the role natural gas, including Australian LNG, plays in China's coal-to-gas switching program, see Oxford Institute for Energy Studies (2018), *The Outlook for Natural Gas and LNG in China in the War against Air Pollution*, December (available at [www.oxfordenergy.org/publications/outlook-natural-gas-lng-china-war-air-pollution](http://www.oxfordenergy.org/publications/outlook-natural-gas-lng-china-war-air-pollution)).

<sup>18</sup> See [www.iea.org/publications/roleofgas](http://www.iea.org/publications/roleofgas) for more information.

<sup>19</sup> According to the Department of the Environment and Energy's *State and Territory Greenhouse Gas Inventories 2017*, Western Australia's total emissions in 2017 were 88.5 Mt CO<sub>2</sub>-e (and Australia's total emissions were 532.8 Mt CO<sub>2</sub>-e). See [www.environment.gov.au/system/files/resources/917a98ab-85cd-45e4-ae7a-bcd1b914cfb2/files/state-territory-inventories-2017.pdf](http://www.environment.gov.au/system/files/resources/917a98ab-85cd-45e4-ae7a-bcd1b914cfb2/files/state-territory-inventories-2017.pdf).

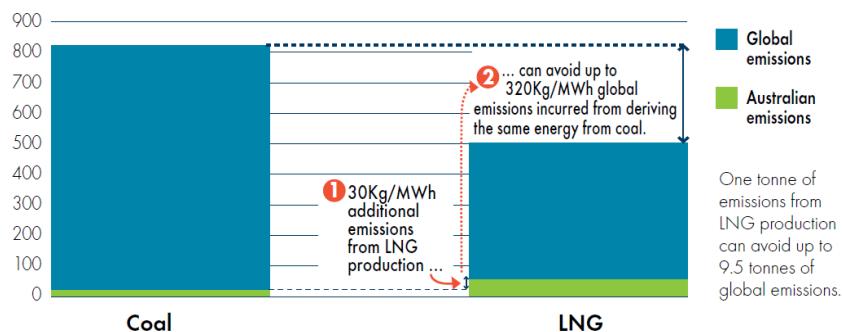
<sup>20</sup> WorleyParsons (2008; 2011), *Greenhouse Gas Emissions Study of Australian LNG*, originally prepared August 2008; updated for public release, March 2011.

greenhouse gas emissions: from extraction and processing in Australia through to an end use of combustion (using different power generation technologies) in China for power generation.

Figure 3 below is derived from data within the study, and shows that:

- For every tonne of CO<sub>2</sub>-e emitted in LNG production within Australia, between 5.5 and 9.5 tonnes of emissions from the coal alternative can be avoided globally.
- LNG has a substantially lower greenhouse footprint associated with it compared to coal – not just in combustion emissions, but throughout its lifecycle.
- The lifecycle greenhouse intensity for LNG is about 50 per cent lower than that of coal.

**Figure 3. Displacement of Coal by LNG (kg/MWh CO<sub>2</sub>-e by Fuel Source)**



Source: Derived from data in WorleyParsons (2008; 2011).

According to recent Australian government estimates, Australian LNG exports have the potential to reduce greenhouse gas emissions by 152 million tonnes in customer nations, equivalent to more than a quarter of Australia's emissions<sup>21</sup> and almost double Western Australia's total emissions in 2017.

In addition, and as noted above, 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.

There are significant benefits to Australia and the world from the greater use of gas as a lower greenhouse gas emitting energy source.

Much greater use of Australia's extensive gas resources will be crucial in meeting the challenge of significantly reducing global greenhouse gas emissions at lowest possible cost whilst enhancing Australia's economic and export performance.

Australia's oil and gas industry has a long history of documenting the full life cycle greenhouse gas emissions impacts of its proposed projects through Environmental Impact Assessment processes. It is important that, where appropriate, new projects discuss the wider impacts of proposed projects. This is particularly relevant for greenhouse gas emissions which do not have local impacts but operate on a global scale. This transparency enables the assessing agency and the broader community to be informed as to the full global impact of such projects. **However, this disclosure should not be confused with a requirement for regulation.**

<sup>21</sup> See [minister.environment.gov.au/taylor/news/2019/australias-national-greenhouse-gas-inventory-march-2019-quarterly-update-released](https://minister.environment.gov.au/taylor/news/2019/australias-national-greenhouse-gas-inventory-march-2019-quarterly-update-released) for more information.

**It is vital that the EPA recognise the key role Western Australia's gas industry can play in reducing Western Australia's greenhouse gas emissions and the role Western Australian LNG exports can play in global greenhouse emissions reductions.**

This also means that while the EPA is clear that it does not consider economic outcomes in the formulation of its advice, which is appropriate under its Act, the ability of Western Australian industry, including the oil and gas industry, to effectively and efficiently invest in projects that will contribute to reducing emissions depends in part on the design of the emissions reduction policy framework within which it makes these investments.

This includes policies applying at both the national and state level. Differences in policy approaches across jurisdictions add to the lack of clarity facing companies seeking to make investments, even if the policy approach in question was intended to provide greater clarity at a particular jurisdictional level.

Given that effective action to reduce greenhouse gas emissions requires policies that are stable and soundly designed from an economic perspective, this confusion is highly counterproductive not just to economic goals, such as further investment in Western Australia, including by the oil and gas industry, but also to the environmental goal (as it is framed in the Background paper) of responding to the challenge of climate change.

In addition, the industry has a long history of taking actions to reduce emissions in and around its operations, and across Australia. Case studies highlighting some of these actions and initiatives can be found at [Attachment 5](#).

## **INTERNATIONAL COMPETITIVENESS: THE MAJOR CHALLENGE**

The major challenge to the industry's continued growth is maintaining Western Australia's international competitiveness in the face of growing global competition. A relatively high-cost local environment, growing policy and regulatory challenges and the emergence of new LNG competitors increases the level of competition Western Australia faces, as it seeks to win market share and attract investment.

The industry and our governments must do everything possible to ensure the projects that remain under construction, commence production in a timely and cost-effective manner and that Western Australia secures future oil and gas investment to supply to domestic and international needs.

Some factors affecting existing and future investment, such as movements in the Australian dollar or oil prices, are beyond the ability of the industry to influence. However, other key challenges must be addressed.

Australia's existing and any future climate change policies should be aimed at enhancing Australia's, including Western Australia's, international competitiveness as a destination for oil and gas investments. They should not add to the cost burden facing the industry or detract from Australia's attractiveness as an investment destination.

**This means it is imperative that the EPA's approach does not place additional obligations on new project over and above those involved in complying with national and state government policy approaches.**



We look forward to further consultation with the EPA on these important issues.

Yours sincerely

**Andrew McConville**

Chief Executive

## ATTACHMENT 1



1 February 2019

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Dear Dr Hatton

**RE: DRAFT ENVIRONMENTAL PROTECTION AUTHORITY (EPA) ENVIRONMENTAL FACTOR  
GUIDELINE ON AIR QUALITY AND DRAFT EPA TECHNICAL GUIDANCE ON MINIMISING  
GREENHOUSE GAS EMISSIONS: APPEA COMMENTS**

Thank you for your letter of 7 January 2019, providing a copy of these draft documents for comment.

The Australian Petroleum Production & Exploration Association (APPEA) welcomes the opportunity to provide comments on these documents, which follow on from our discussions during the various EPA Stakeholder Reference Group (SRG) discussions held in recent years.

They also follow on from our 2015 comments to the EPA on its draft *Greenhouse gas emissions and consideration of projected climate change impacts in the EIA process* (EPB No. 24), which was released on 29 September 2015.

The majority of APPEA's comments are focussed on the *Draft EPA Technical Guidance on Minimising Greenhouse Gas Emissions*.

***Environmental Factor Guideline on Air Quality: APPEA comments***

APPEA recommends removing references to greenhouse emissions from the EPA's *Environmental Factor Guideline on Air Quality* and dealing with this issue separately.

***Draft EPA Technical Guidance on Minimising Greenhouse Gas Emissions: APPEA comments***

General comments

The effective and efficient management of greenhouse gas emissions is an issue which APPEA and its members takes very seriously and APPEA and its members have been engaged constructively in the development of climate change policy for more than 25 years.

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As part of this, APPEA is committed to working with governments and relevant agencies 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<sup>1</sup>](#) – setting out the principles that APPEA considers should underpin Australia's policy response to climate change. These principles inform the comments on the draft technical guidance set out below.

**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 need for a national approach

This means APPEA supports a national approach to greenhouse gas emissions reduction policies, which are the responsibility of the Australian Government as the signatory to Australia's Paris Agreement commitments.

This also means duplicative and inconsistent requirements should not be imposed through the *Environment Protection Act 1986* (WA). In particular, the role flagged by the EPA in the technical guidance document does not appear to appropriately acknowledge the continuing role the present and any future Australian Government is and will play in managing emissions and therefore risks being duplicative rather than complementary. This can only cause confusion and regulatory delays in having projects assessed and approved.

In addition, APPEA is aware the WA government is currently considering its climate policy and work is underway through the WA Department of Water and Environmental Regulation on the formulation of this policy.

**Given this, APPEA recommends the EPA postpone releasing a revised guidance on the assessment of greenhouse gas emissions until such time as the WA Government has determined its policy which – acknowledging the EPA's independence – will provide vital policy context for the EPA's approach.**

Background and rationale (pages 2-3)

The draft technical guidance document provides a significant amount of background which, while useful, serves to highlight the need for a comprehensive and robust national policy response as opposed to a proposal to only target a minority of large emitters through the environmental impact assessment process.

The draft document asserts a weakness in the Emissions Reduction Fund's Safeguard Mechanism as not having "... formal linkage – in the form of an aligned objective or emissions target – between the Safeguard Mechanism and Australia's Nationally Determined Contribution under the Paris Agreement". APPEA notes the draft document also does not present a "aligned objective or emissions target" by which to determine the efficacy of the proposed EPA's actions outlined in the draft guidance document.

<sup>1</sup> 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](http://www.appea.com.au/2016/02/appea-updates-climate-change-policy-principles).



Page 3 of the draft document claims future large projects in the WA LNG industry that are yet to be assessed have the capacity to increase the States emissions by a further 50 per cent. However, little analysis is presented to support this claim. APPEA recommends this claim be substantiated or removed.

Outline of the greenhouse management framework (pages 4-5)

While, as noted above, APPEA is firmly of the view that greenhouse gas emissions reduction policies should be imposed through national approaches, are the responsibility of the Australian Government and should therefore not be imposed under the *Environment Protection Act 1986* (WA), APPEA is generally supportive of project proponents having to outline anticipated level of greenhouse gas emissions, and consideration of how to minimise those emissions, as part of the environmental impact assessment.

APPEA notes page 5 of the draft document states that the EPA's greenhouse gas management framework has "... proved to be effective in minimising greenhouse gas emissions". While the requirements have resulted in some small reductions in emissions from a selection of large projects, APPEA would note this approach is not part of an effective national emissions reduction policy and appears to have had little impact of Western Australia's overall emissions trajectory.

Guidance to proponents on application of the framework (pages 5-7)

The requirement to identify Scope 3 emissions should be removed as there are no clear factors by which to determine these and they occur outside the scope of the facility being assessed. Alternatively, the EPA will need to publish detailed guidance on how Scope 3 emissions should be determined.

*Best practice design, benchmarking (page 5-6)*

Significant care is needed with regard to benchmarking in that the level of emissions from a facility may be influenced by many factors outside of the control of the facility proponent. In addition, emissions intensity should not be used as a proxy for efficiency. A more appropriate test is to consider the facility design processes and management practices proposed for the facility being assessed compared with other similar facilities.

In addition, terms such as "best practice" should be avoided. What is best practice at one facility may not be appropriate for another facility. Indeed, the use of a best practice technology may lead to an increase in emissions in another part. The use of aero derivative gas turbines is an example where while having a high thermal efficiency, cannot use waste gas as fuel, requiring that waste gas to be vented or flared, potentially increasing overall greenhouse gas emissions. Any reference to "best practice" should use the term "currently applied best practice appropriate for the project being assessed".

APPEA does not support the requirement for independent technical advice or peer review from appropriately qualified analysts. The front-end engineering and design of some of these facilities is highly skilled and labour intensive and external reviewers are unlikely to be across all the issues that sit behind individual design decisions.



An alternative is to consider the approach the proponent has taken to project design, such as:

- Does the proponent have a robust project design process and does this process require greenhouse impacts to be considered?
- Has the proponent applied an internal carbon price in assessing design options?

This approach would appropriately move the assessment from one of considering “lagging indicators” (what technology has been selected and so on) to a forward-looking process of assessing “leading indicators” around design process and corporate standards.

#### *Continuous improvement (page 6)*

Opportunities may exist to consider opportunities for performance to be improved, such as when major equipment reaches the end of its operation life. However, the focus on continuing emissions improvement may not be achievable in many facilities. Declining grade, depth of mine and reducing oil/gas field pressure are all examples where the resource industry may face increasing emissions intensity over time and firms may struggle to avoid emissions increasing over time.

#### *Reporting (pages 6-7)*

As has been discussed previously, there is no policy justification for requiring reporting of greenhouse gas emissions outside of the National Greenhouse and Energy Reporting System (NGERS).

Indeed, contrary to assertions on pages 6-7 of the draft technical guidance document, significant levels of data, including at a facility level, are available to the WA Government can be made available to EPA through the data sharing provisions of the *National Greenhouse and Energy Act 2007* (NGER Act). For example, the Climate Change Authority, in their 2018 review of NGER Act<sup>2</sup> found, on page 38 *“A state or territory is permitted to publish emissions and energy information collected under the reporting scheme if required under a law of the state or territory.”*

Rather than propose a separate and duplicative reporting regime, APPEA recommends the EPA discuss with the Department of the Environment and Energy and the Clean Energy Regulator access to the data required by the EPA and public disclosure arrangements.

#### *Offsets (page 7)*

Offsets provide a potentially important way to reduce emissions and sit alongside a ‘portfolio’ of emissions reduction options available to those covered by emissions reduction policies or pursued voluntarily. Offsets are also available through the Australian Government’s Emissions Reduction Fund (ERF) policy and have been acquitted by covered facilities to meet emissions reduction obligations under the ERF’s safeguard mechanism<sup>3</sup>.

<sup>2</sup> Climate Change Authority (2018), *Review of the National Greenhouse and Energy Reporting Legislation Final Report*, 21 December, page 38 (available at [climatechangeauthority.gov.au/review-national-greenhouse-and-energy-reporting-legislation-final-report](http://climatechangeauthority.gov.au/review-national-greenhouse-and-energy-reporting-legislation-final-report)).

<sup>3</sup> In 2016-17m for example, 448,097 Australian carbon credit units (ACCUs) were surrendered to meet ERF safeguard mechanism obligations. See

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In addition, offsets are also likely to continue to form a central component of any future national emissions reduction policy (whether that future policy is a continuation of the existing (or an amended) ERF safeguard mechanism, or an alternative approach).

On this basis, additional and potentially duplicative or non-complementary action at a State level is not required and additional offset requirements, over and above any national emissions reduction approach, are not required and should not be pursued by the EPA.

We look forward to further consultation with the EPA on these important issues. Please feel free to contact Mr Damian Dwyer, Director – Economics on (02) 6247 0960 or at [ddwyer@appea.com.au](mailto:ddwyer@appea.com.au) if you have any queries.

Yours sincerely

A handwritten signature in black ink that reads "Malcom Roberts".

**Malcom Roberts**  
Chief Executive

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[www.cleanenergyregulator.gov.au/NGER/National%20greenhouse%20and%20energy%20reporting%20data/safeguard-facility-reported-emissions/safeguard-facility-emissions-2016-17](http://www.cleanenergyregulator.gov.au/NGER/National%20greenhouse%20and%20energy%20reporting%20data/safeguard-facility-reported-emissions/safeguard-facility-emissions-2016-17) for more information.

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## ENVIRONMENTAL FACTORS – ISSUES AND IMPACTS GUIDELINES

## AIR QUALITY

The environmental objective of the factor Air Quality is:

*To maintain air quality and minimise emissions so that environmental values are protected.*

**Purpose**

The purpose of this guideline is to communicate how the factor Air Quality is considered by the Environmental Protection Authority (EPA) in the environmental impact assessment (EIA) process.

Specifically, the guideline:

- defines the factor *Air Quality* and explains the associated objective
- describes how this factor links with other environmental factors
- describes EIA considerations for this factor
- discusses the environmental supported by good air quality, and their significance
- identifies activities that can impact on air quality
- provides a summary of the type of information that may be required by the EPA to undertake EIA related to this factor
- describes issues commonly encountered by the EPA during EIA of this factor

**What is air quality?**

For the purposes of EIA, the EPA defines the factor *Air Quality* as:

*The chemical, physical, biological and aesthetic characteristics of air.*

'Air' refers to all the air above the ground up to and including the stratosphere.

**How this factor links with other environmental factors**

The EPA recognises that there are inherent links between the factor *Air Quality* and other environmental factors. For example, changes to air quality can affect human health, social surroundings, flora and vegetation, terrestrial environmental quality or marine environmental quality. While impacts to these environmental values will be considered under the relevant factor, the EPA will consider the impact to *Air Quality* in concert with these other factors, where appropriate, in order to assess impacts to an ecosystem's integrity as a whole.

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#### The environmental objective for the Air Quality factor

The EPA's environmental objective for the factor Air Quality is: "To maintain air quality and minimise emissions so that environmental values are protected".

The environmental objective recognises the fundamental link between air quality and the environmental values supported by good air quality. It also recognises the principle of waste minimisation as set out in the *Environmental Protection Act 1986*.

In the context of this environmental factor and objective, the EPA recognises that maintaining air quality and minimising emissions protects human health and amenity, as well as the broader environment by minimising impacts on climate.

Therefore, the focus of this environmental factor and its objective is:

- the impacts of emissions on air quality and other environmental values
- how discharge of waste into the air is managed and minimised
- how any discharge of waste will significantly impact on air quality and the environmental values that air quality supports.

#### Considerations for environmental impact assessment

Considerations for EIA for the factor *Air Quality* include, but are not necessarily limited to:

- application of the mitigation hierarchy to avoid and minimise emissions, where possible
- characterisation of potentially harmful emissions (including greenhouse gas emissions) and the pathways by which they may be released to air
- whether numerical modelling and other analyses to predict potential impacts has been undertaken using recognised standards with accepted inputs and assumptions
- whether existing background air quality, including natural variations, has been established through monitoring and accepted proxy data
- whether analysis of potential health and amenity impacts has been undertaken using recognised criteria and standards, where relevant, informed by Australian and international standards
- the application of technology appropriate to the potential environmental impacts and risks
- the significance of the likely change to air quality as well as the environmental values affected by those changes, in the context of existing and predicted cumulative impacts
- whether proposed mitigation is technically and practically feasible
- whether siting of the proposal's main emission sources takes into consideration current and future sensitive land uses.

While considering the significance of potential impacts to air quality, the EPA may have regard to the various matters outlined in Section 5 of the Statement of Environmental Principles, Factors and Objectives.

#### **Environmental values of air quality and its significance**

'Environmental value' is defined under the *Environmental Protection Act 1986* as a beneficial use, or an ecosystem health condition. The ecosystem health values related to air quality as applied in EIA are human health and amenity, and the broader environmental values vulnerable to the accumulation of greenhouse gasses in the atmosphere.

From time to time, poor air quality can also impact other environmental factors. For example, dust may smother flora and vegetation. In these circumstances, EIA of the potential impacts will be undertaken against the relevant environmental factor, in this example the environmental factor *Flora and Vegetation*.

#### **Impacts**

Development activities that have the potential to impact on air quality include, but are not necessarily limited to:

- waste to energy plants where the emissions from the combustion of waste is discharged to the air
- the capture, processing and refining of oil and gas
- the burning of fossil fuels for energy production
- heavy industries that emit atmospheric waste such as metal smelting or refineries
- bulk handling and transport (both road and rail) of materials, including the loading and unloading of bulk materials
- port operations that include the transport, loading, unloading and storage of bulk materials
- stockpiling of bulk material
- the crushing and screening of materials
- incineration of wastes, for example medical waste
- mining and processing of metallic and non-metallic minerals that include activities that cause dust or burn fossil fuels
- chemical manufacturing and processing.

#### **Information required for EIA**

Where *Air Quality* has been identified as a preliminary key environmental factor, the EPA may require the proponent to provide information or studies including, but not limited to the following categories.

For air emissions that may affect human health or amenity:

- characterisation of the feedstock and the pollutants and contaminants that are likely to be emitted
- characterisation of and proximity to sensitive receptors

- background ambient air modelling and the impact of emissions on sensitive receptors, including likely impacts during, worst, best and most likely case scenarios
- assessment against published standards and criteria
- identification of emission reduction equipment and proposed technologies, and where relevant, demonstration of the use of proven technologies.

There are measures that the EPA may recommend to minimise the impacts of greenhouse gas (GHG) emissions, including (in order of increasing onus on the proponent):

- 1) Monitoring and public reporting of emissions
- 2) Benchmarking and designs for emissions and energy efficiency;
- 3) Continuous improvement in greenhouse gas emissions through the periodic review, and adoption of advances in technology and process management, including consideration of carbon capture and storage technology; and
- 4) Offsetting GHG emissions.

More detailed guidance on considerations related to greenhouse gas emissions and the information required for assessment can be found in the *Technical Guidance – Minimising Greenhouse Gas Emissions*.

#### Issues

The following issues are matters that are commonly encountered by the EPA due to the nature of proposals and schemes that are referred to it. Background on these issues is provided here to help proponents and the community engage with EIA. This issues section will be updated from time to time to reflect new issues as they arise in referrals and EIA.

##### *Reasonable and practicable measures to minimise harmful emissions to air*

Consistent with the principle of waste minimisation as set out in section 4A of the *Environmental Protection Act 1986*, the EPA encourages the application of all reasonable and practicable measures to minimise harmful emissions to air. This might include facility design, technology choice, operation and closure.

Reasonable and practicable measures include those measures which are reasonably practicable, having regard to, among other things, local conditions and circumstances (including costs) and the current state of technical knowledge.

Under some circumstances, the EPA may expect more stringent standards such as Maximum Extent Achievable, particularly where hazardous contaminants are involved. Maximum Extent Achievable requirements incorporate technology and environmental management procedures which are the most stringent measures available and achievable, at a scale relevant to the proposal, to control the level of risk imposed by the hazardous pollutants being considered. Hazardous contaminants include known or suspected carcinogens, mutagens, teratogens, highly toxic or highly persistent substances.

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In undertaking EIA, the EPA will consider the choice of technology to ensure that it is capable of achieving appropriate emission standards and minimizing emissions commensurate with the risk to the environment.

*Maintaining ambient air quality to protect human health*

It is well recognised that air pollution can have an adverse effect on human health. Maintaining or improving ambient air quality is important for public health outcomes.

When undertaking EIA and making judgements about the acceptability of potential impacts to ambient air quality and, therefore, human health, the EPA's assessment will typically be informed by accepted air quality standards and criteria, which are based on epidemiological studies.

Where there is an absence of a recognised standard or criteria to determine likely risk to human health, there may be the need to develop standards based on the available information and knowledge and, where appropriate, consultation with technical experts. This will depend on the circumstances and identified sensitive receptors.

*Particulates*

In recent years, there has been scientific evidence that very fine particulates have the potential to impact human health irrespective of their chemical composition.

Emission of fine particulates is associated with vehicle emissions and any activities which generate dust, and are particularly relevant when located in close proximity to residential and other sensitive land uses.

It is likely that EIA will increasingly consider particle size and occurrence, as well as chemical composition.

*Air sheds and cumulative impacts*

An air shed is a geographical area within which air is frequently confined or channelled. All parts of the air shed are, therefore, subject to similar conditions of air pollution.

This becomes particularly important when there are cumulative impacts from multiple emitters within an air shed. There will be a point at which combined emissions mean that the air shed no longer meets established standards or human health is affected.

When undertaking EIA, existing or future cumulative impacts to an air shed will be an important consideration.

*Greenhouse Gas Emissions*

Emissions of greenhouse gases contribute to the changing climate, and to ocean acidification. The effects of the changing climate are predicted to be significant in Western Australia, with a drying climate in the south-west, more frequent and severe storms in the north-west, and a rising sea level along our entire coastline.

The EPA's expectations for minimising the impacts of GHG emissions will reflect the scale of emissions from specific proposals.

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Version	Change	Date
V1.0	Initial document	13 December 2016
V2.0	Addition of Greenhouse Gas emission information for EIA. Minor updates for consistency	?? January 2019

Environmental Protection Authority 2018, Environmental Factor Guideline: Air Quality  
EPA, Western Australia.

This document is available in alternative formats upon request.

National Relay Service TTY: 133 677 (To assist persons with hearing and voice impairment)

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**Technical Guidance  
Minimising Greenhouse Gas Emissions**

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## 1. Purpose and scope

This technical guidance addresses the minimisation of greenhouse gas emissions from significant new or expanding operations. The purpose of this guidance is to:

- discuss the circumstances under which the EPA will assess greenhouse gas emissions associated with development proposals; □
- outline relevant considerations for minimising greenhouse gas emissions consistent with the objectives of the *Environmental Protection Act 1986* (EP Act); □ and
- ensure proposals that have the potential to significantly contribute to Western Australia's greenhouse gas emissions are assessed in a sound and consistent manner that demonstrates how the EPA's objective for the Factor 'air quality' will be met.

The approaches outlined in this Guidance are not new. They have been applied to significant and relevant proposals subject to formal environmental impact assessment for almost two decades.

This Guidance sets out the approach that has been refined and consolidated over this period and is complementary to existing national policy settings and consistent with goals for reducing greenhouse gas emissions.

The scope of this guidance relates to all greenhouse gases reported under the Commonwealth *National Greenhouse and Energy Reporting Act 2007*, which include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur hexafluoride (SF<sub>6</sub>) and specified kinds of hydro fluorocarbons and perfluorocarbons.

## 2. Background and rationale

The United Nations Framework Convention on Climate Change (UNFCCC) provides the framework for international cooperation to reduce global greenhouse gas emissions and limit temperature increases.

The UNFCCC Paris Agreement entered into force on 4 November 2016 and commits Australia to reducing greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030. This nationally-determined contribution is equivalent to a halving of per capita emissions and a two-thirds reduction in economic emissions intensity compared to 2005 levels. The Paris Agreement acknowledges that net zero emissions will be required in the second half of the century to achieve its goals of limiting warming to well below two degrees Celsius above pre-industrial levels<sup>1</sup>.

The Australian Government's principal mitigation initiative is the Emissions Reduction Fund (ERF) and the associated safeguard mechanism. The safeguard mechanism applies to facilities with direct emissions in excess of 100,000 tonnes CO<sub>2</sub>-e per annum, and requires liable entities to keep

<sup>1</sup> The Paris Agreement, United Nations Framework Convention on Climate Change, 2016.

emissions at or below a predetermined (historical or calculated) emissions baseline<sup>2</sup>.

The International Energy Agency<sup>3</sup> has observed the lack of an effective 'carbon constraint or rate under the ERF or Safeguard' and notes that additional measures are required to meet Australia's 2030 targets. This view was reinforced by the United Nations Environment Programme's Emissions Gap Report 2018.

As of 28 June 2018, 74 non-electricity sector safeguard mechanism facilities (around a third of liable facilities outside the electricity sector) had applied to increase their emissions baseline, and from 2019 major emitters will move to 'calculated baselines' set by reference to median emissions intensity values. Independent analyses suggest that emissions from entities covered under the safeguard mechanism will significantly increase by 2030<sup>456</sup>. The lack of a formal linkage - in the form of an aligned objective, or emissions target - between the safeguard mechanism and Australia's Nationally Determined Contribution under the Paris Agreement is also noted.

In 2018, Western Australia contributed 82.2 million tonnes<sup>7</sup> carbon dioxide equivalent (CO<sub>2</sub>-e), or 16 per cent, to Australia's greenhouse gas emissions. Western Australia is the only Australian jurisdiction to have experienced a significant increase in greenhouse gas emissions between 2000 and 2016, with the State's emissions increasing by 27 per cent over this period.

Western Australia has the second highest per capita emissions of all Australian states and territories, with emissions per capita significantly above those of other developed economies, including resource-based economies such as Canada<sup>8</sup>.

Future proposals assessed under Part IV of the *Environmental Protection Act 1986* (EP Act), particularly large upstream liquefied natural gas projects, have the capacity to increase the State's emissions by a further fifty per cent by 2030 and materially contribute to Australia's total emissions.

Western Australia's emissions trajectory is concerning in light of Australia's international commitments and increasingly stringent global agreements. This technical guidance acknowledges that, in the absence of effective national mechanisms, a greater share of the burden may fall to regulators in state and territory jurisdictions.

<sup>2</sup> National Greenhouse and Energy reporting Scheme, Clean Energy Regulator, Canberra.

<sup>3</sup> Energy Policies of IEA Countries. Australia 2018 Review. International Energy Agency.

<sup>4</sup> Australia's Rising Greenhouse Gas Emissions, Climate Council of Australia, June 2018.

<sup>5</sup> Tracking 2 Degrees, Quarterly Report Q1 FY2018, NDEVR Environmental.

<sup>6</sup> Choose your own baseline – Industrial emissions and the Safeguard Mechanism, Reputex Energy, February 2018.

<sup>7</sup> From the 2016 State and Territory Greenhouse Gas Inventory.

<sup>8</sup> Global Carbon Atlas 2016.

### 3. Context

Climate change will have significant impacts in Western Australia. The southwest will be worst affected with ongoing declines to rainfall, and increases in temperature, fire frequency and extreme weather events. Changes in habitat distribution could threaten native plant and animal species that are geographically isolated or occupy narrow ecological niches. Coastal parts of the State will be vulnerable, particularly to changes in intensity and frequency of storms and sea level rise<sup>9</sup>.

Climate change is a result of cumulative anthropogenic greenhouse gas emissions driven by incremental contributions from a large number of emitters globally, with Australia currently contributing around 1.3 per cent of global emissions<sup>10</sup>. This means the scale of climate impacts in Western Australia will be dictated, to a significant extent, by greenhouse gas emitting activities occurring outside the State and, indeed, outside Australia.

Nonetheless, while the problem of climate change requires coordinated national action within the framework of binding international agreements, the EP Act provides for the protection of Western Australia's environment from incremental impacts, and the EPA is obliged to consider the effects of proposals which could significantly impact the environment, including contributions to the State's greenhouse gas emissions.

In accordance with the objectives under the EP Act to "protect the environment and to prevent, control, and abate pollution and environmental harm", the goal of encouraging significant emitters to adopt best practice to minimise greenhouse gas emissions remains important, if not entirely sufficient, to protect our climate.

This guidance does not seek to duplicate other regulatory approaches. The framework approach outlined may be applied flexibly as national policy settings evolve. It should be noted, however, that many of the considerations outlined in this guidance are aimed at improving transparency, and addressing information barriers or other impediments to best practice, and are warranted regardless of the policy approach at the national level.

### 4. Outline of the greenhouse gas management framework

The Western Australian EPA has a long-standing record of encouraging proposals undergoing environmental impact assessment to identify and minimise greenhouse gas emissions. The EPA's objective is to ensure that potential greenhouse gas emissions emitted from projects are minimised in the planning, design and operation of projects.

The EPA's greenhouse gas management framework includes measures aimed at:

- **Benchmarking and Design** – comparing emissions and energy intensity performance metrics against industry best practice and

<sup>9</sup> State of the Climate 2016. CSIRO and the Bureau of Meteorology

<sup>10</sup> World Resources Institute (2017, April 11). *CAIT Climate Data Explorer*. Retrieved from: <http://cait.wri.org>

ensuring emissions and energy intensity are considered at the design stage and/or attaining a particular level of emissions intensity performance;

- **Continuous improvement** – ensuring consideration of measures to improve performance and/or attaining a particular level of absolute emissions reductions and/or emissions intensity improvement over time;
- **Reporting emissions** – reporting of greenhouse gas emissions, actions to reduce emissions, and emissions intensity metrics to the EPA, Minister or public; and
- **Offsetting emissions** (carbon offsets) – requiring the consideration or implementation of a greenhouse gas emissions offset package.

These approaches have proven to be effective in minimising greenhouse gas emissions including through the adoption of operational practices or technologies which go beyond 'business-as-usual'.

## 5. Guidance to proponents on application of the framework

The consideration of greenhouse gas emissions from proposals will be subject to a significance framework to ensure projects are assessed, and greenhouse gas emission requirements recommended, in an effective, consistent and equitable manner.

Projects with direct (Scope 1) emissions of more than 100,000 tonnes per annum (tpa) CO<sub>2</sub>-e will be required to describe emissions associated with the proposal and adopt abatement measures which reflect the likely scale of emissions. Consistent with the significance framework, proposals with higher emissions will be subject to more stringent assessment and abatement criteria than those with lower emissions. The EPA considers a threshold of more than 100,000 tpa strikes a reasonable balance between effectiveness (i.e. coverage) and regulatory burden, and aligns with the Australian Government's liability threshold under the safeguard mechanism.

Proponents with project emissions of this scale will be required to describe greenhouse gas emissions associated with the proposal, including:

- direct and indirect (Scope 1, 2 and 3) greenhouse gas emissions (CO<sub>2</sub>-e) per annum and over the life of the proposal;
- a breakdown of emissions by source (inclusive of stationary energy, transport, and changes to land use); and
- the projected emissions intensity (emissions per unit of production) for the proposal.

Proponents with emissions above the threshold level will be expected to address mitigation measures relevant to the objectives below, consistent with this guidance.

### 5.1 Best practice design, benchmarking

Benchmarking and design requirements seek to influence technology selection at an early stage of project development, and encourage proponents to consider greenhouse gas emissions when evaluating options for plant design

including technologies or fuels. Requiring proponents to consider greenhouse gas emissions in the design stage of a proposal is critical to reducing emissions over the life of the project.

Project proponents will be required to demonstrate that design measures to minimise emissions intensity (emissions per unit of production) are consistent with industry best practice at the time of seeking project approval.

Benchmarking proposals against other projects nationally or globally can be complex, particularly where there is a paucity of directly comparable emissions performance data. As a result, it can be difficult to determine whether proponents are making all reasonable efforts to deploy best practice technologies within the constraints of a particular project.

For projects with the capacity to make very large contributions to Western Australia's greenhouse gas emissions (> 1 million tpa CO<sub>2</sub>-e) the EPA is likely to require independent technical advice or peer review from appropriately qualified analysts to support assertions of best practice.

The EPA will also continue to draw on advice, analysis and data from regulators across Australian jurisdictions to support its assessment of industry best practice to ensure best practice requirements are robust and evidence-based.

### **5.2 Continuous improvement**

While the most significant opportunities for energy efficiency are likely to be identified in the early design phase, many proposals will continue to identify economic options to reduce emissions and improve energy efficiency, through adoption of new technologies or changes to operational practices, over the life of the project.

Requiring proposals to identify an emissions reduction target for continuous improvement, and to periodically assess and report measures to minimise emissions (including through energy efficiency) can address well recognised barriers to energy efficiency in the industrial and power sectors that impede the adoption of otherwise cost-effective ('no regrets') measures.

The EPA expects that proposals with significant emissions will explicitly address continuous improvement measures in their greenhouse gas abatement plans, and report on opportunities identified and implemented to minimise greenhouse gas emissions.

### **5.3 Reporting**

The EPA requires proposals with significant emissions to publicly report greenhouse gas emissions associated with the proposal, along with measures implemented to minimise greenhouse gas emissions over the project life. Reporting conditions underpin data availability, public accountability and transparency, and have been applied historically in the context of significant restrictions on publication of facility-level data under the Commonwealth's *National Greenhouse and Energy Reporting Act 2007* (NGER Act).

Data disclosed through the Australian Government's safeguard mechanism has enhanced the visibility of facility-level emissions from liable facilities. However, the NGER Act and safeguard mechanism do not facilitate provision of information to the EPA or the Western Australian community about the efforts

of proponents to minimise emissions, or the emissions intensity performance (emissions per unit of production) achieved by proposals *in practice*.

Public reporting of these elements is required to provide assurance to the community about the progress of undertakings made by proponents during the review phase, to support data availability and robust best practice benchmarking, and to ensure that commitments in relation to performance standards are being met.

The EPA will continue to recommend reporting requirements consistent with these goals, streamlined with Commonwealth reporting requirements, as far as practicable.

#### 5.4 Offsets

Greenhouse gas offsets (carbon offsets or carbon credits) are generated from activities that prevent or reduce the release of greenhouse gas emissions to the atmosphere, or remove greenhouse gases from the atmosphere. Removal of greenhouse gases through 'carbon sequestration' involves the capture and storage of carbon in soils, geological reservoirs, forests and other vegetation.

Carbon offsets can compensate for greenhouse gas emissions that occur elsewhere, and thereby minimise the net contribution of major developments to global climate change. In this way, offset conditions can counterbalance or trade off the significant residual environmental impacts associated with proposals.

Carbon markets, including methodologies for offsetting and mechanisms for crediting offset activities, have evolved significantly since the EPA first began recommending greenhouse gas offset conditions for major proposals in 2005. Under the Australian Government's emissions reduction fund (ERF), carbon offsets or 'carbon credits' (known as Australian Carbon Credit Units or ACCUs) are generated from activities in a wide range of sectors, including waste, agriculture, vegetation, transport, buildings and mining. ACCUs can then be sold to businesses or individuals wishing to offset their emissions.

The National Carbon Offset Standard defines carbon offset eligibility to ensure genuine and credible emissions reductions. Proponents may purchase offsets from a range of sources that meet the criteria defined under the National Carbon Offsets Standard to satisfy their offset obligations. The EPA may give additional consideration to the nature of proposed carbon offsets to ensure they effectively reduce net emissions. [In order to avoid double counting, proponents subject to offset conditions will be expected to surrender or voluntarily cancel offsets in the relevant offset registry.]

The EPA will consider carbon offsets for proposals with the capacity to make very large contributions to the State's emissions. In particular, offsets will be considered for those emissions not likely to be addressed by adoption of best practice technologies.

The EPA notes that offset requirements are prescriptive, and likely be non-complementary to a broad-based market mechanism such as a carbon price or a 'cap and trade' emissions trading scheme. Until emissions from proposals are covered in this manner, offsets will continue to be considered where relevant and appropriate.

## 6. Glossary of terms

**Australian Carbon Credit Units:** An ACCU is a unit issued to a person by the Clean Energy Regulator by making an entry for the unit in an account kept by the person in the electronic Australian National Registry of Emissions Units (Registry). Each ACCU issued represents one tonne of carbon dioxide equivalent (tCO<sub>2</sub>-e) stored or avoided by a project. An ACCU can only be issued to a person if the person has a Registry account and a Registry account can only be opened by a person after the Regulator has considered whether they are a 'fit and proper person'.

**Cap and trade emissions trading scheme:** A cap and trade system is a market-based approach to controlling pollution that allows corporations or national governments to trade emissions allowances under an overall cap, or limit, on those emissions.

**Carbon offsets:** A carbon offset is a reduction in emissions, or the removal from the atmosphere, of carbon dioxide or greenhouse gases made in order to compensate for an emission made elsewhere.

**Complementary:** in the context of GHG emissions, policies which enhance or complement the effectiveness of a carbon price.

**Emissions Reduction Fund:** The Emissions Reduction Fund is a voluntary scheme that aims to provide incentives for a range of organisations and individuals to adopt new practices and technologies to reduce their emissions. It is enacted through the *Carbon Credits (Carbon Farming Initiative) Act 2011*, the *Carbon Credits (Carbon Farming Initiative) Regulations 2011* and the *Carbon Credits (Carbon Farming Initiative) Rule 2015*.

**Greenhouse gases:** gaseous compounds that affect the atmosphere's radiative forcing, trapping heat in the lower atmosphere.

**Nationally Determined Contribution:** Nationally determined contributions (NDCs) are part of the Paris Agreement and underpin the achievement of its long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve.

**Non-complementary:** in the context of GHG emissions, policies which duplicate or distort the effectiveness of a carbon price.

**Paris Agreement:** an agreement within the United Nations Framework Convention on Climate Change (UNFCCC), dealing with greenhouse gas emissions mitigation, adaptation, and finance, starting in the year 2020. As of November 2018, 195 UNFCCC members have signed the agreement, and 184 have become party to it. The Paris Agreement's long-term goal is to keep the increase in global average temperature to well below 2 °C above pre-industrial levels; and to limit the increase to 1.5 °C, since this would substantially reduce the risks and effects of climate change.

**Safeguard mechanism:** The mechanism implemented under the Commonwealth *National Greenhouse and Energy Reporting Act 2007* to require facilities with direct emissions in excess of 100,000 tonnes per annum to keep their emissions at or below a baseline level.

**Scope 1 emissions:** The GHG emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level.

**Scope 2 emissions:** the GHG emissions released to the atmosphere from the indirect consumption of an energy commodity.

**Scope 3 emissions:** GHG emissions other than scope 2 emissions that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business.

**United Nations Framework Convention on Climate Change:** an international environmental treaty adopted on 9 May 1992, and entered into force on 21 March 1994. The UNFCCC objective is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The framework sets nonbinding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, the framework outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to specify further action towards the objective of the UNFCCC.



## Climate change policy principles



Second edition: December 2015  
Australian Petroleum Production & Exploration Association

**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.

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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.

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## 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<sup>1</sup>.

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.

<sup>1</sup> 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\\_html/pdf/application/pdf/conveng.pdf](http://unfccc.int/files/essential_background/background_publications_html/pdf/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.<sup>2</sup>

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.<sup>3</sup>

### 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.

<sup>2</sup> 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](http://www.ipcc.ch)).

<sup>3</sup> UNFCCC (2015), Adoption of the Paris Agreement, 12 December (available at [unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf](http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf)).

## Natural gas: integral to a low-carbon economy

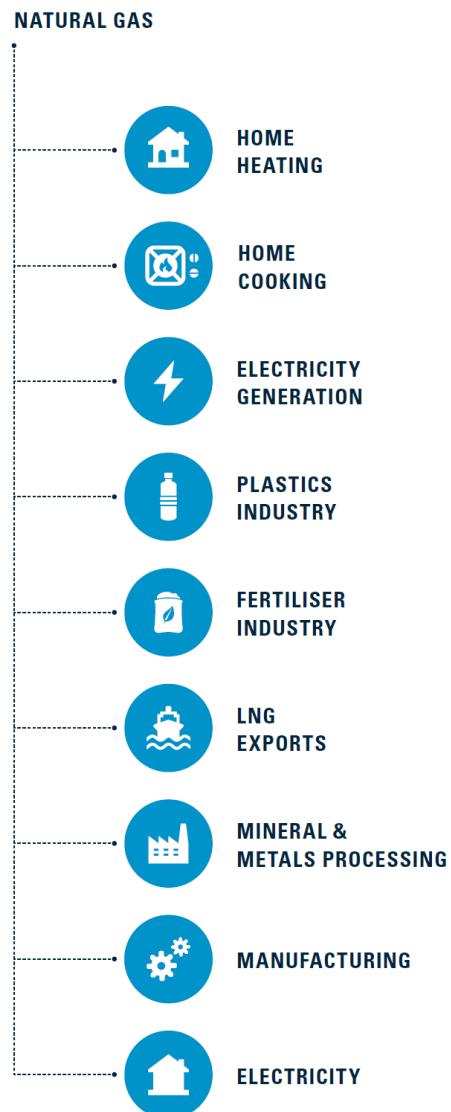
Natural gas is a lower-carbon form of energy suitable for electricity generation, industry and households.

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.<sup>4</sup>

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%.<sup>5</sup>
- 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%.<sup>6</sup>
- Natural gas is also a critical feedstock for industry that often cannot be substituted in producing fertilisers, cleaners, polymers and refrigerants.



<sup>4</sup> 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](http://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”.

<sup>5</sup> These technologies are already being deployed in commercial buildings in Australia (see [www.urbanenergy.com.au/projects](http://www.urbanenergy.com.au/projects), [www.originenergy.com.au/files/Origin\\_Coca\\_Cola\\_place\\_FactSheet.pdf](http://www.originenergy.com.au/files/Origin_Coca_Cola_place_FactSheet.pdf), [www.cityofsydney.nsw.gov.au/vision/towards-2030/sustainability/carbon-reduction/trigeneration](http://www.cityofsydney.nsw.gov.au/vision/towards-2030/sustainability/carbon-reduction/trigeneration) and [www.qantas.com.au/travel/airlines/electricity/global/en#power](http://www.qantas.com.au/travel/airlines/electricity/global/en#power) for examples).

<sup>6</sup> 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 CO<sub>2</sub>-e (million tonnes per annum, carbon dioxide equivalent) by 2030 – a reduction of 27% to 52% from the base case of 197 Mtpa CO<sub>2</sub>-e in 2012.

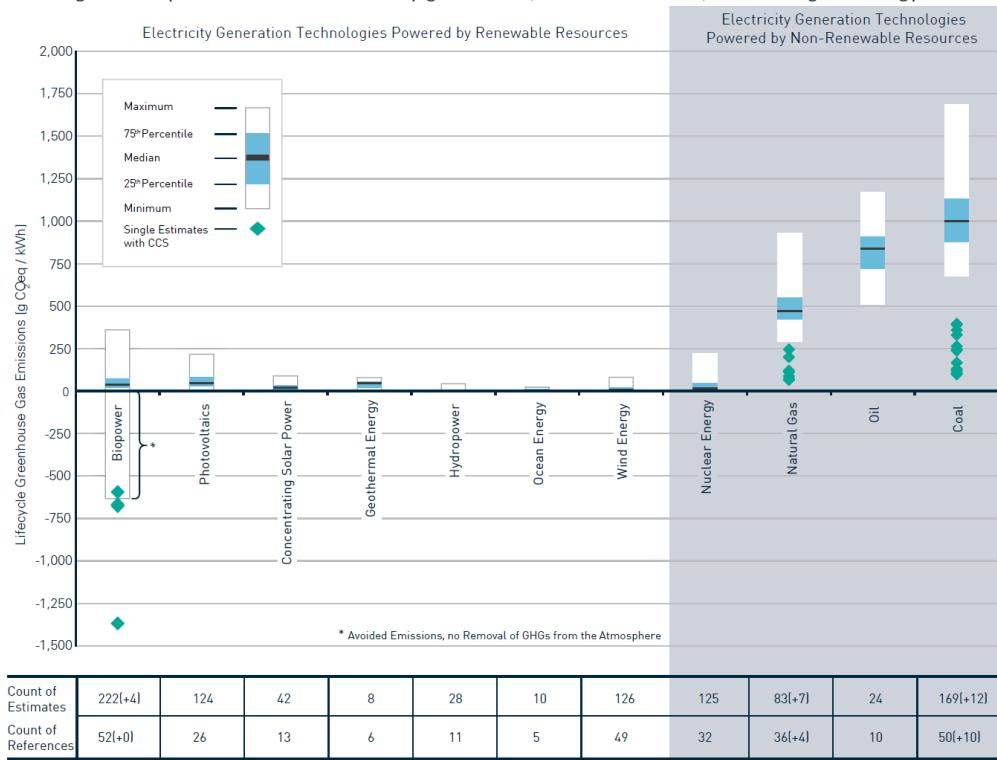
### Other environmental benefits

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 CO<sub>2</sub>-e/MWh) from a range of energy sources



Source: IPCC (2011)<sup>7</sup>

<sup>7</sup> 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. Schlamser, 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](http://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<sup>8</sup> – soon to be commissioned – is the world's largest greenhouse gas mitigation project undertaken by industry.

<sup>8</sup> See [www.chevronaustralia.com/our-businesses/gorgon/carbon-dioxide-injection](http://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](http://www.appea.com.au)

## THE WESTERN AUSTRALIAN UPSTREAM OIL AND GAS INDUSTRY

It is also important to place our views on the issues raised by the EPA in the Background paper within the context of the current state and potential future contribution of the upstream oil and gas industry to the Western Australian economy and to the welfare of all Western Australians.

Reliable, secure and competitively priced energy is crucial to our everyday lives in Australia, including in Western 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 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<sup>22</sup>.

Provided we have appropriate regulatory and policy settings, including through the outcomes of this guidelines development process, our abundant natural gas resources places Western Australia (and Australia more broadly) in an enviable position to deliver long-term, cleaner energy domestically and across the Asia-Pacific. Western 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 is particularly true of the EPA assessment guidelines which, if poorly drafted and implemented, could endanger future investment and compromise the key positive role this industry can play.**

**It is therefore vital that the inappropriate approach proposed in the March 2019 guidelines is not repeated in this process.**

<sup>22</sup> See [www.appea.com.au/oil-gas-explained/benefits/gas-and-manufacturing](http://www.appea.com.au/oil-gas-explained/benefits/gas-and-manufacturing).

## ACTIONS TAKEN BY THE AUSTRALIAN UPSTREAM OIL AND GAS INDUSTRY TO REDUCE EMISSIONS AND TO EMBED CLIMATE CHANGE CONSIDERATIONS INTO DECISION-MAKING

One of the largest contributions Australia can and does make to reduce global greenhouse gas emissions is through the use of natural gas both domestically and through LNG exports to Asia. Taken together, these actions have reduced global greenhouse gas emission by millions of tonnes per annum and as Australia's LNG exports grow, this positive contribution will also grow.

In addition, the industry has a long history of taking actions to reduce emissions in and around its operations, and across Australia.

### The industry has a long history of measuring, reporting and taking actions to reduce its greenhouse gas emissions

The Australian upstream oil and gas industry, including in Western Australia, has a long history of measuring, reporting and taking actions to reduce its greenhouse gas emissions<sup>23</sup>. Submissions from APPEA members provide a number of examples of actions companies have taken to reduce their emissions profile and to embed climate change considerations into company decision-making.

In addition to a commitment to the APPEA *Climate Change Policy Principles*, many APPEA member companies have corporate emissions reduction targets, place climate change issues at the forefront of their corporate sustainability reporting and executive remuneration and use internal carbon prices as part of their assessment of investment decision-making. Many of these actions encompass the entire oil and gas exploration and production life cycle.

Looking forward, technical improvements and equipment upgrade opportunities may become available (as they have for other projects). Such opportunities are generally linked to capital investment cycles that can extend for a number of years.

Two case studies follow, highlighting global and local joint industry initiatives and practical emissions abatement efforts through savannah fire management.

### Case Study 1: Industry joint initiatives

The oil and gas industry, both internationally and in Western Australia, has come together around several industry initiatives to act collectively to reduce greenhouse gas emissions and play a positive role in climate change policy developments.

#### Oil and Gas Climate Initiative

The Oil and Gas Climate Initiative (OGCI) is a voluntary, CEO-led initiative which aims to lead the industry response to climate change.

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<sup>23</sup> For example, the upstream oil and gas industry, through APPEA, was one of only two industries to sign a Co-operative Agreement with the Australian Government under the (former) Greenhouse Challenge program. Under that agreement, which ran from 1996 to 2007, the industry provided reports to the Government containing industry-wide data on greenhouse gas emissions (dating back to 1990) and outlining activities planned, in progress or completed by a member company that resulted in reductions in greenhouse gas emissions.

Launched in 2014, OGCI comprises thirteen oil and gas companies, six of whom are APPEA members, that pool expert knowledge and collaborate on action to reduce greenhouse gas emissions<sup>24</sup>.

OGCI aims to increase the ambition, speed and scale of the initiatives members undertake as individual companies to reduce the greenhouse gas footprint of their core oil and gas business – and to explore new businesses and technologies.

#### OGCI Climate Investments

In November 2016, OGCI launched a billion-dollar investment vehicle, OGCI Climate Investments<sup>25</sup>. OGCI Climate Investments invests in technologies that have the potential to significantly reduce greenhouse gas emissions, and that are economically viable. OGCI Climate Investments focus is on innovative companies with promising technology and business models that are ready to be commercialised.

#### Zero Routine Flaring by 2030

This World Bank initiative<sup>26</sup>, brings together governments, oil and gas companies (six of whom are APPEA members), and development institutions who agree to cooperate to eliminate routine flaring no later than 2030.

Companies that endorse the Initiative will develop new oil fields they operate according to plans that incorporate sustainable utilisation or conservation of the field's associated gas without routine flaring.

Oil companies with routine flaring at existing oil fields they operate will seek to implement economically viable solutions to eliminate this legacy flaring as soon as possible, and no later than 2030.

#### Climate and Clean Air Coalition Oil and Gas Methane Partnership

The Climate and Clean Air Coalition (CCAC) created a voluntary initiative to help companies reduce methane emissions in the oil and gas sector<sup>27</sup>. The Oil and Gas Methane Partnership was launched in September 2014<sup>28</sup>.

The Oil and Gas Methane Partnership provides companies a mechanism to systematically and responsibly address their methane emissions, and to demonstrate this systematic approach and its results to stakeholders.

In 2017, eight companies, six of whom are APPEA members, signed a set of *Guiding Principles on Reducing Methane Emissions across the Natural Gas Value Chain*. The principles are to:

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<sup>24</sup> See [www.oilandgasclimateinitiative.com](http://www.oilandgasclimateinitiative.com). APPEA member companies BP, Chevron, Eni, Equinor, ExxonMobil and Shell are OGCI members.

<sup>25</sup> See [www.oilandgasclimateinitiative.com/climate-investments](http://www.oilandgasclimateinitiative.com/climate-investments).

<sup>26</sup> See [www.worldbank.org/en/programs/zero-routine-flaring-by-2030](http://www.worldbank.org/en/programs/zero-routine-flaring-by-2030) for more information. APPEA member companies BP, Eni, Equinor, OMV Group, Shell and Woodside Energy have endorsed the Initiative.

<sup>27</sup> See [www.ccacoalition.org/en/activity/ccac-oil-gas-methane-partnership](http://www.ccacoalition.org/en/activity/ccac-oil-gas-methane-partnership) for more information. APPEA member companies BP, Eni, PTT, Shell and Equinor are partner companies.

<sup>28</sup> See [www.ccacoalition.org/en/resources/reducing-methane-emissions-across-natural-gas-value-chain-guiding-principles](http://www.ccacoalition.org/en/resources/reducing-methane-emissions-across-natural-gas-value-chain-guiding-principles) for more information. APPEA member companies BP, Eni, Equinor, ExxonMobil, Shell and Woodside are signatories to the Guiding Principles.

- Continually reduce methane emissions.
- Advance strong performance across gas value chains.
- Improve accuracy of methane emissions data.
- Advocate sound policies and regulations on methane emissions.
- Increase transparency.

The Guiding Principles are complementary to and mutually reinforcing of other initiatives, including the OGCI.

### **Case Study 2: emissions abatement through savannah fire management**

As part of its role at the forefront of the Australia's emission abatement efforts, the oil and gas industry has been a foundation partner in the innovative approach that lead to the establishment of a new savannah burning industry.

The ERF Savannah Burning emissions avoidance methodology<sup>29</sup>, was pioneered by the West Arnhem Land Fire Abatement (WALFA) project<sup>30</sup>, a collaboration between Darwin LNG (DLNG), and the Djelk, Jayown, Warddeken, Mimal and Adjumarllal Indigenous rangers groups, Charles Darwin University and the Northern Territory Government.

Supported by DLNG since 2006, WALFA is now recognised globally as a world class program with success in both greenhouse gas abatement alongside social, cultural and economic co-benefits.

With a cumulative total abatement since inception of over 2Mt CO<sub>2</sub>-e, WALFA is the largest greenhouse gas offset program in Australia and has been the catalyst for over 70 other similar projects across northern Australia.

The Project's success is not limited to greenhouse gas emissions abatement alone – it has also resulted in the conservation of rainforest vegetation, protection of local wildlife and rock art sites, facilitated reinvigoration of cultural aspects of land management, while supporting more than 300 Indigenous jobs per year over the years the project has been operational.

In a similar way, the Ichthys LNG Project recently finalised agreements with the Indigenous Land Corporation (ILC) and Perpetual Trustees to deliver a savannah fire management program in the Northern Territory<sup>31</sup>. This \$34 million program will fund the development, establishment and operation of individual fire management projects on Aboriginal-held land.

In addition to generating Australian Carbon Credit Units (ACCUs), it is aimed at providing positive social, economic, cultural and environmental outcomes

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<sup>29</sup> The *Carbon Credits (Carbon Farming Initiative – Emissions Abatement through Savanna Fire Management) Methodology Determination 2015* was made on 25 March 2015. See [environment.gov.au/climate-change/emissions-reduction-fund/methods/savanna-burning](http://environment.gov.au/climate-change/emissions-reduction-fund/methods/savanna-burning) for more information.

<sup>30</sup> See [www.conocophillips.com.au/sustainable-development/Pages/WALFA.aspx](http://www.conocophillips.com.au/sustainable-development/Pages/WALFA.aspx) for more information.

<sup>31</sup> See [www.ilc.gov.au/Home/News/%2434m-Indigenous-savanna-fire-management-program](http://www.ilc.gov.au/Home/News/%2434m-Indigenous-savanna-fire-management-program) for more information.