



# Energy Security Board *National Energy Guarantee Draft Detailed Design Consultation Paper, 15 June 2018*

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## INTRODUCTION

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

APPEA welcomes the opportunity to provide comment to the Energy Security Board (ESB) on the *National Energy Guarantee Draft Detailed Design Consultation Paper, June 2018* (the Draft Consultation Paper), released on 15 June 2018. This submission builds on APPEA's March 2018 submission to the Energy Security Board's *National Energy Guarantee Draft Design Consultation Paper*<sup>1</sup> and APPEA's July 2018 submission to the *National Energy Guarantee Draft Detailed Design for Consultation, Commonwealth Elements, June 2018*<sup>2</sup>.

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

In the brief period available to respond, APPEA's submission addresses specific aspects of the Draft Consultation Paper, focussing on those areas that are particularly important for the upstream oil and gas industry.

## THE AUSTRALIAN UPSTREAM OIL AND GAS INDUSTRY

It is important to place our views on the issues raised by the ESB in the Draft Consultation Paper within the context of the state and potential future contribution of the upstream oil and gas industry to the Australian economy and to the welfare of all Australians.

Reliable, secure and competitively priced energy is crucial to our everyday lives in Australia. Within this framework, oil and gas plays a key role in meeting many of our energy needs.

Australia has substantial natural gas resources. Geoscience Australia<sup>3</sup> has estimated that Australia's identified gas resources are around total prospective gas resources are around 257 trillion cubic feet (tcf) or 280,000 petajoules (PJ). By way of comparison, Australia's production of natural gas in 2017 (including exports) was around 3.9 tcf or 4,100PJ<sup>4</sup>, meaning, with favourable policy settings, Australia has more than enough gas to service both domestic (including for gas-fired power generation) and export markets for decades.

Our abundant natural gas resources place Australia in an enviable position to maintain long-term, cleaner energy security domestically and internationally. Natural gas has a key role to play as Australia meets its growing energy needs over the coming decades while reducing emissions and addressing the risks posed by climate change.

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<sup>1</sup> A copy of APPEA's submission is available at [www.appea.com.au/wp-content/uploads/2018/03/APPEA-Submission-NEG-080318-1.pdf](http://www.appea.com.au/wp-content/uploads/2018/03/APPEA-Submission-NEG-080318-1.pdf).

<sup>2</sup> A copy of APPEA's submission is available at [www.appea.com.au/wp-content/uploads/2018/07/National-Energy-Guarantee-Draft-Detailed-Design-for-Consultation-Commonwealth-Elements-June-2018-APPEA-Submission.pdf](http://www.appea.com.au/wp-content/uploads/2018/07/National-Energy-Guarantee-Draft-Detailed-Design-for-Consultation-Commonwealth-Elements-June-2018-APPEA-Submission.pdf).

<sup>3</sup> Geoscience Australia (2018), *Australian Energy Resource Assessment* (available at [aera.ga.gov.au](http://aera.ga.gov.au)). This report also estimates Australia's total prospective resources of gas, which includes Australia's enormous shale gas potential, at around 11,300 tcf or 12,500,000PJ.

<sup>4</sup> EnergyQuest (2018), *EnergyQuarterly June 2018 Report* (available at [www.energyquest.com.au/reports.php?id=1](http://www.energyquest.com.au/reports.php?id=1)).



This means the design of the National Energy Guarantee (the Guarantee) will be an important determinant of future demand for gas-fired power generation.

Just as importantly, the industry creates significant wealth for the country, including through the employment of many Australians, underpinning the revenue collections of governments and generating valuable export revenue for the Australian economy.

**NATURAL GAS: A LOW-EMISSIONS ENERGY SOURCE INTEGRAL TO A LOW CARBON ELECTRICITY SECTOR**

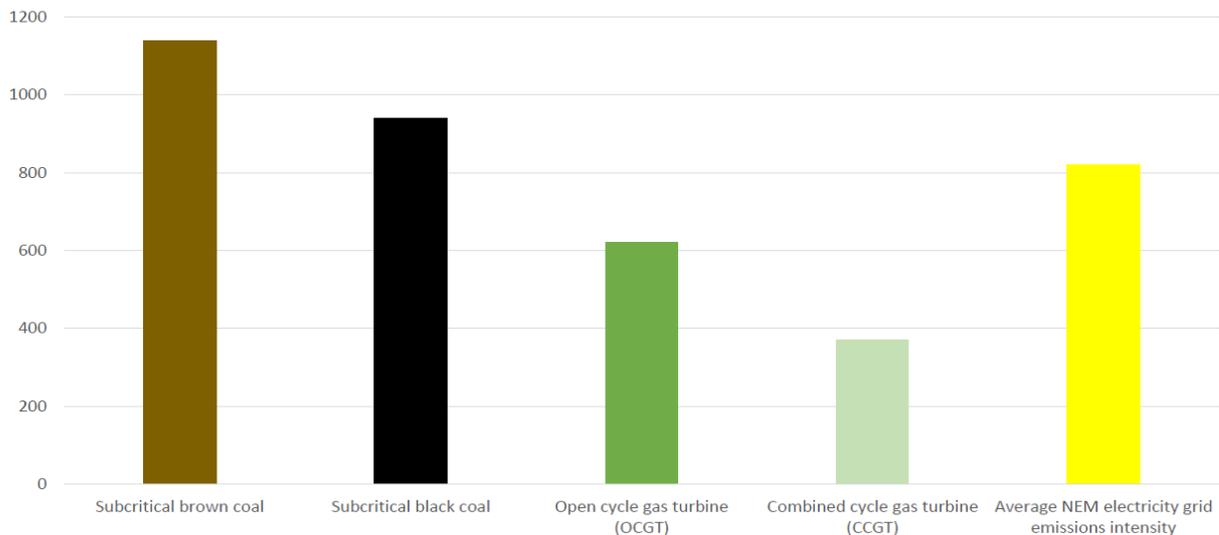
Australia could generate significant additional national economic, environmental and social benefits through greater utilisation of its substantial natural gas resources.

Using more natural gas in Australia's power generation and resource processing would significantly enhance the nation's ability to meet increasing energy needs while at the same time reducing greenhouse gas emissions. As noted, the design of the Guarantee will have a key role to play in securing this positive outcome.

As data in the *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future* (the Finkel Review Final Report) on page 203 shows, available natural gas power generation technologies can reduce greenhouse gas emissions by 55 per cent compared to the National Electricity Market (NEM) average, and by 68 per cent compared to existing brown coal generation technologies and 61 per cent compared to existing black coal generation technologies.

This is illustrated in Figure 1, which shows, using data from page 203 of the Finkel Review Final Report<sup>5</sup>, the significantly lower greenhouse gas emissions associated with the use of gas-fired power generation compared to the use of other conventional fuels.

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



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

<sup>5</sup> Commonwealth of Australia (2017), *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future*, June (available at [www.energy.gov.au/government-priorities/energy-markets/independent-review-future-security-national-electricity-market](http://www.energy.gov.au/government-priorities/energy-markets/independent-review-future-security-national-electricity-market)).



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

- 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.

As the Finkel Review Final Report found on page 105:

*Access to a reliable and affordable gas supply is in the interest of all Australians for its direct use for heating, as a feedstock chemical for industrial processes and as a fuel for electricity generation. In the NEM, gas-fired generation can provide a reliable, low emissions substitute for ageing coal-fired generation, and can provide essential security services to complement variable renewable electricity (VRE) generation.*

In relation to its role on the in reliability and emissions reduction in the NEM – key areas of focus for the Guarantee – the Final Report found on page 107:

***Gas contributes to a secure and reliable NEM***

*Rapid changes in power output from VRE generation need to be balanced with generation technology that has the ability to increase (ramp up) or decrease (ramp down) power output at the same time. Gas-fired generators have the ability to 'fast ramp'. Most of Australia's coal-fired generators do not. In addition, gas-fired generators are synchronous and provide essential security services, including physical inertia to help dampen rapid frequency changes, fault current to help maintain system strength, and the ability to supply or absorb reactive power to help control voltage.*

and on page 109:

***Gas contributes to emissions reduction***

*... Australia's coal-fired generation fleet is ageing and is unlikely to be replaced on a like-for-like basis.*

*The best gas-fired generation is less than half as emissions intensive than even the most efficient coal-fired plant, including ultra-super-critical coal generation, which is referred to as high efficiency, low emissions (HELE) generation. To compete with new gas-fired generation from the emissions point of view, new HELE generation would need to be fitted with carbon capture and storage ...*

This means gas has a key role to play in supporting the objectives of the Guarantee outlined on page 5 of the Draft Consultation Paper that the Guarantee:

*... encourages new investment in clean and low emissions technologies while allowing the electricity system to continue to operate reliably.*

*The emissions reduction and reliability requirements work together to ensure the market has a fair opportunity to deliver adequate reliability whilst lowering emissions. The Guarantee will provide a clear investment signal, so the cleanest, cheapest and most reliable generation (or demand response) gets built in the right place at the right time.*



In addition, a 2016 paper<sup>6</sup> by Syracuse University and the National Bureau of Economic Research, conducted jointly with researchers from the Fondazione Eni Enrico Mattei and Euro Mediterranean Centre on Climate Change in Italy and French Economic Observatory Sciences Po and SKEMA Business School in France, discusses the role of fast-reacting fossil technologies, which includes most gas generation technologies, in supporting renewable energy investments.

It does so by studying the deployment of these two technologies in 26 OECD countries, including Australia, between 1990 and 2013. The paper finds that a 1 per cent increase in the share of technologies such as gas-fired generation capacity is associated with a 0.88 per cent increase in renewables in the long-run.

The paper makes a number of very important conclusions, three of which stand out as directly relevant to the energy debate underway in Australia and to the development of the Guarantee.

Firstly, it shows that countries where gas-fired generation capacity is available are more likely to invest in renewable energy generation, particularly over the longer-term.

Secondly, gas-fired generation, due to its quick ramp-up times and lower capital costs compared to traditional baseload technologies, has enabled renewable investments by providing reliable back-up capacity to support variable renewable supply.

And lastly, renewables and fast-reacting gas-fired power generation technologies appear as highly complementary and should be jointly installed to meet the goals of reduced emissions and stable supply.

This means that as the penetration of renewable energy increases, so will the requirements for increased back-up capacity. Serious stresses will be put on energy systems, such as the NEM, unless the relationship and the complementarity between gas-fired power generation and renewable energy technologies are appropriately acknowledged.

The paper goes on to argue that a debate that sets up renewables and gas as being in opposition misses this important point.

The design of the Guarantee therefore represents an important opportunity to secure the role natural gas can play in the transition to a more reliable and lower emissions electricity sector and, through the consultation process, to recommend to COAG a package of measures that could increase gas supply and allow gas to play the critical role identified by, amongst others, the Finkel Review Final Report.

The potentially growing role of natural gas 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 dispatchable technology capable of delivering

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<sup>6</sup> Verdolini E, Vona, F and Pope, D (2016), *Bridging the gap: do fast reacting fossil technologies facilitate renewable energy diffusion?* (available at [www.feem.it/userfiles/attach/20167271022524NDL2016-051.pdf](http://www.feem.it/userfiles/attach/20167271022524NDL2016-051.pdf)).



that flexible response. As more renewable energy is integrated into the grid, and as the Draft Consultation Paper recognises, 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<sup>7</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 16 per cent from their peak in 2007. Amongst other reasons, this was possible because the US is developing its abundant natural gas resources.

We have a similar opportunity in Australia. If they can be produced, there are sufficient Australian natural gas resources to underpin a historic shift to a lower emissions generation sector.

## THE BARRIERS TO GAS PLAYING THIS KEY ROLE MUST BE REMOVED

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

One of the key barriers to gas playing the critical role identified in various reviews, including the Finkel Review Final Report, is the regulatory barriers that are preventing the development of more gas to flow into the domestic market and the entry of more suppliers into that market.

The COAG Energy Council has consistently supported the need to bring more supply and more suppliers into the market but this collective position is not supported by all state governments. The most extreme case is Victoria, which has prohibited all onshore gas activity. Various regulatory barriers have also prevented the industry moving forward in New South Wales.

Until all jurisdictions support a co-operative COAG agenda to remove the regulatory and other barriers to new gas supply, the emissions and reliability objectives of the Guarantee will be compromised.

Such an outcome is also inconsistent with the recommendations of the Australian Competition and Consumer Commission (ACCC)<sup>8</sup> which has consistently recommended governments adopt:

*... regulatory regimes to manage the risks of individual gas supply projects on a case by case basis rather than using blanket moratoria. Governments should take into consideration the significant effects that moratoria and other restrictions on gas development may have on gas users.*

In a similar way, the Finkel Review Final Report<sup>9</sup> found:

*... regulatory restrictions not based on evidence have long-term detrimental impacts on gas exploration and development and disrupt the flow of gas.*

*The interconnected nature of the east coast gas market means decisions made by states in isolation have national consequences and impacts for multiple markets – including the NEM.*

<sup>7</sup> See [www.eia.gov/todayinenergy/detail.php?id=28312](http://www.eia.gov/todayinenergy/detail.php?id=28312) for more information. For more recent data, which shows emissions were lower again in the first six months of 2017, see [www.eia.gov/totalenergy/data/monthly](http://www.eia.gov/totalenergy/data/monthly) (Carbon dioxide emissions from energy consumption: 12.1 By source).

<sup>8</sup> See [www.accc.gov.au/regulation/infrastructure/energy/east-coast-gas-inquiry-2015](http://www.accc.gov.au/regulation/infrastructure/energy/east-coast-gas-inquiry-2015) and [www.accc.gov.au/publications/serial-publications/gas-inquiry-2017-2020](http://www.accc.gov.au/publications/serial-publications/gas-inquiry-2017-2020) for further information.

<sup>9</sup> Commonwealth of Australia (2017), *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future*, June (available at [www.energy.gov.au/government-priorities/energy-markets/independent-review-future-security-national-electricity-market](http://www.energy.gov.au/government-priorities/energy-markets/independent-review-future-security-national-electricity-market)).



*The consequences of these interventions are now being felt. Any disruptions to the flow of investment will impact the availability of gas for the domestic market, leading to higher prices and consequent risk to the economy and jobs.*

*The Panel considers that governments should avoid blanket restrictions and bans on gas projects and instead encourage the safe exploration and development of the industry. Evidence based regulatory regimes enable the risks of individual gas projects to be managed on a case-by-case basis.*

and went on to recommend:

**Recommendation 4.3**

*Governments should adopt evidence based regulatory regimes to manage the risk of individual gas projects on a case-by-case basis.*

*This should include an outline on how governments will adopt means to ensure that landholders receive fair compensation.*

**In a similar way, both the ESB and the Commonwealth Government should continue to push, in their advice to the COAG Energy Council, the urgent removal of existing bans and moratoriums on natural gas supply on the east coast, with their replacement by a comprehensive and consistent regulatory regime across COAG Energy Council jurisdictions.**

**This recommendation is vital to ensuring natural gas plays the critical role envisaged for it by the ESB and the Government and to support the aims for the Guarantee set out in the Draft Consultation Paper.**

## COMMENTS ON SPECIFIC SECTIONS OF THE DRAFT CONSULTATION PAPER

As outlined above, our abundant natural gas resources place Australia in an enviable position to maintain long-term, cleaner energy security domestically and internationally. Natural gas makes it possible for Australia to meet the world's growing energy needs over the coming decades while incorporating a strategy to curb emissions and address the risks faced as a result of climate change.

## OVERVIEW OF THE GUARANTEE

As the Draft Consultation Paper notes on page 12, the Guarantee can potentially "... ensure we can meet the electricity sector's share of our international obligation to reduce emissions while supporting the reliability of our electricity system." It will also be vital to ensure the Guarantee supports more efficient use of existing cleaner and lower emissions technologies. In some cases, existing technologies could be more, or more efficiently, utilised to meet the Guarantee's reliability obligations without requiring new investment. A balance will be important.

## MANAGING RELIABILITY RISKS

APPEA agrees with the assessment on page 14 of the Draft Consultation Paper that the energy system, particularly the NEM, is undergoing significant transformation. As noted above, the growing penetration of VRE generation technologies means the role lower emissions and dispatchable power generation technologies, such as gas-fired power generation, is vital to supporting this transformation in a manner that ensures the Guarantee's requirements are met.



## REDUCING EMISSIONS

APPEA is committed to working with governments as they develop policy responses to climate change, including through the design and implementation of the Guarantee. APPEA in February 2016 released a second edition of its *Climate Change Policy Principles* – a copy is at [Attachment 1](#)<sup>10</sup> – setting out the principles that APPEA considers should underpin Australia's policy response to climate change.

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 noted below, designed effectively the Guarantee can, in more efficient and technology neutral way, encourage investment in lower-emissions generation technology and potentially lessen the role of the RET and remove the need for the plethora of state-based renewable energy targets that have again emerged in recent years.

## EMISSIONS REDUCTION REQUIREMENT

### Generation and emissions allocation approach

APPEA supports the approach, as outlined on page 20 of the Draft Consultation Paper, that aims to ensure the *"... emissions reduction requirement is ... designed to ensure there is sufficient flexibility for market customers to meet their compliance obligation at lowest possible cost."*

With that in mind, APPEA notes the changed approach from the February 2018 paper (which it was design proposed that all output of generators attributed to a corporate group would be automatically allocated to a corporate group) to the alternative arrangements outlined in the June 2018 Draft Consultation Paper, that would ensure market customers will be responsible for meeting the electricity emissions target. For many of the reasons outlined on page 21 of the Draft Consultation Paper, this seems a sensible approach (subject to APPEA's comments below on the treatment of "large users").

Similarly, APPEA notes the proposal to ensure the first 50,000 MWh of any market customer's load will be exempt from the emissions reduction requirement, and instead spread over other market customer load, effectively ensuring small market customers will be exempt for some or all of their load. APPEA supports this approach, subject to the comments below on the treatment of large users.

### Registry operations

APPEA supports the proposed approach, outlined on page 24 of the Draft Consultation Paper, that the registry be administered by AEMO, supported by data exchange protocols in place with the Clean Energy Regulator and allowing access by the Australian Energy Regulator.

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<sup>10</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).



### Flexible compliance options

APPEA reiterates its support for the use of flexible compliance options to reduce instances of non-compliance and minimise the costs of the Guarantee for all participants.

#### *Carrying forward overachievement*

APPEA supports an option to permit retailers unlimited<sup>11</sup> carry-over of compliance 'overachievement'. The limits proposed on page 26 of the Draft Consultation Paper (5 per cent of the emissions intensity reflected in the target for the first year of the emissions reduction requirement for each MWh of load, plus a fixed amount of 60,000 tCO<sub>2</sub>-e) are low and likely to drive higher compliance costs. This option could also allow (on a voluntary basis) this overachievement to be offered to the market and utilised by other retailers.

#### *Deferring compliance*

In a similar way, APPEA supports permitting retailers to defer a portion of the emissions requirement from one compliance year to the next. As the Draft Consultation Paper notes on pages 26-27, this may provide retailers with flexibility as to the timing of their activities and lower the overall costs of compliance with the Guarantee. In a similar way to the comments noted above, the Draft Consultation Paper's proposal to limit the level of deferral to 10 per cent of the electricity emissions target per MWh of load and to make this limit cumulative over two years, with the market customer required to make good in the third year on the first year's deferral amount, is low and is likely to drive higher compliance costs. The ESB could also consider making allowances for overachievement through generating offsets that could be used elsewhere. This could be enacted through amendments to the National Electricity Rules or National Electricity Legislation.

#### *Use of offsets*

APPEA's comments on the use of offsets are provided in detail in our submission to the *National Energy Guarantee Draft Detailed Design for Consultation, Commonwealth Elements, June 2018*.

In summary, APPEA's *Climate Change Policy Principles* support, in the context of a national and broad-based emissions reduction policy, that any policy approach should<sup>12</sup> "... recognise and allow the use of the widest range of credible domestic and international offsets." Consistent with this position, APPEA recommends the Guarantee's emissions requirement similarly recognise and allow for the use of credible domestic and international offsets.

#### *The compliance period*

APPEA welcomes the Draft Consultation Paper's recommendation that the compliance year for the Guarantee's emissions requirement be set on financial year basis to align with NGERs reporting requirements. APPEA recommends this position be carried through the Board's final advice to the COAG Energy Council for consideration at its August 2018 meeting.

#### *Enforcement tools for emissions reduction requirement*

While APPEA agrees that a flexible compliance regime needs to be backed by enforcement tools, and supports the approach outlined on page 31 of the Draft Consultation Paper to build a culture of

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<sup>11</sup> An alternative would be increasing the limit (for example, to 10 per cent) to provide a better balance between flexibility and compliance.

<sup>12</sup> See [www.appea.com.au/wp-content/uploads/2016/02/Climate-Change-Policy-Principles-APPEA-final.pdf](http://www.appea.com.au/wp-content/uploads/2016/02/Climate-Change-Policy-Principles-APPEA-final.pdf), page 2 for more information.



compliance, minimising non-compliance through informing, educating and engaging stakeholders, the proposal on page 31 to include a civil penalty with a new upper limit of \$100 million, appears excessive and out-of-line with the approach proposed in the rest of this section. APPEA recommends this upper limit be reconsidered.

#### Other considerations

##### *Interaction with the RET and interaction with State and Territory renewable energy targets*

APPEA agrees with the statement on page 32 of the Draft Consultation Paper that future investment in low emissions technology will be rewarded through the emissions reduction requirement of the Guarantee. APPEA notes this could include both gas-fired generation and renewable power generation technologies.

Designed effectively the Guarantee can, in more efficient and technology neutral way, encourage investment in lower-emissions generation technology and potentially lessen the role of the RET and remove the need for the plethora of state-based renewable energy targets that have again emerged in recent years.

With that in mind, APPEA reiterates its recommendation made in response to the February 2018 Draft Consultation, that if the COAG Energy Council makes a decision at its August 2018 meeting to proceed with Guarantee implementation then, in addition to the implementation of the Guarantee itself, a parallel consultation process should commence to focus on ways to ultimately replace (rather than accommodate in the Guarantee) the hotch potch of renewable energy targets across NEM jurisdictions with a single mechanism – an efficiently designed, low cost, National Energy Guarantee.

## RELIABILITY REQUIREMENT

### Overview

APPEA offers the following comments on a number of the steps in the eight high-level steps to the reliability requirement outlined on page 33 of the Draft Consultation Paper.

In particular, and as will be considered further below, APPEA supports the reliability obligation being placed on retailers, but not on large users.

### Step 1: Forecasting the reliability requirement

As the first step in the eight-step reliability requirement outlined on page 33 of the Draft Consultation Paper, the veracity of any forecasting process used to forecast the 'reliability gap' that may (or may not) need to be met to ensure the reliability requirement is itself met, is vitally important. Inaccurate or unreliable forecasting of any gap could impose significant and ongoing costs on participants.

APPEA therefore welcomes the ESB's recognition on page 35 that

*Since AEMO's ESOO forecast could form the basis of a regulatory obligation, they will be subject to a robust and transparent process along with an annual performance review.*

APPEA also supports the proposals set out on page 35 to require AEMO, as part of its forecasting process to, consult with stakeholders through a more formal consultation process (set out in published guidelines), including on defining performance metrics, considering back-casting as part of the performance monitoring and reporting and publishing forecasting performance on at least on an



annual basis. APPEA also welcomes the requirement that AEMO publish and consult on a proposed improvement program, and then report on it as part of the next ESOO.

In addition APPEA, noting as the ESB has recognised the AEMO modelling approach was not established for the purpose of forcing market intervention and significant capital investment, advocates a risk-based assessment of the extension of the AEMO model to highlight areas of focus/weakness and recommends the AEMO modelling incorporate all policies in place to assist NEM and gas market supporting NEM (for example, the Gas Supply Guarantee<sup>13</sup>).

Any recommended changes/improvements to AEMO's forecasting ability should be in place before the reliability requirement commences in 2019.

#### *The role of the independent entity*

APPEA supports the role of the independent entity to provide a check on a request by AEMO to trigger the reliability obligation. This could provide an important level of rigour to the decision-making process – very important in a situation where a regulatory requirement is imposed based on a forecasting process.

In particular, APPEA supports the proposals that the AER develop appropriate procedural check points with AEMO including, as outlined on page 37 of the Draft Consultation Paper, annual checks – taking on board stakeholder feedback – on AEMO's adherence to Consultation Procedures, regular forecast performance monitoring and reporting on definitions and measures used, assumptions, modelling and analytical approaches to estimating reliability gaps.

#### Step 4: Liable entities

**APPEA does not support the inclusion of certain large users in the Guarantee's reliability obligations, as considered on pages 37-39 of the Draft Consultation Paper.**

Imposing obligations on users similar to that of retailers would negate a key reason for using a retailer in the first place. For example, many large users have chosen not to register as customers in order to ensure the complexity of their interaction with the NEM is managed by those with the required systems and expertise (that is, retailers). Requiring end users to manage this responsibility themselves would create additional costs and inefficiencies. This proposal would also limit a large user's contracting flexibility, impose a different risk profile to that current being managed, and adversely affect a large user's ability to utilise any demand response mechanisms.

Rather than utilising an 'opt out' model as the default position, APPEA recommends that the Guarantee adopt an 'opt in' model, where the default position for large users remains their existing contract positions, with the ability to 'opt in' to Guarantee's reliability obligations.

As an alternative approach that could limit the adverse burdens associated with the ESB's proposal, would be to apply the threshold as a single site-based approach rather than corporate entity, that threshold for large customers is set at a higher level (for example, 100MW) and the threshold calculation allows for a revision of the forecast where a material change is implemented to reduce the peak, such as self-generation.

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<sup>13</sup> See [www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Emergency-Management/Gas-Supply-Guarantee](http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Emergency-Management/Gas-Supply-Guarantee) for more information.



### Step 5: Qualifying contracts

While APPEA, as the peak industry body for the upstream oil and gas industry, is not well placed to provide detailed comments on this section of the Draft Consultation Paper, it is important to recognise that a deeply competitive NEM is key to lowering costs for all stakeholders and ensuring that efficient investment signals are sent through the NEM for new investment, utilisation of existing generation assets is optimised and efficient utilisation of demand management opportunities are supported by the NEM.

If the approach to the treatment of large users recommended above is not adopted, APPEA recommends the 'grandfathering' of arrangements for large customers who are liable entities being fully firm qualifying contracts.

In addition, in response to the Demand Response Technical Working Paper that supports the Draft Consultation Paper, APPEA notes that demand side responses adequately recognise behind the meter solutions, that is, partial self-generation/ turn-down, where this limits the demand side however is not contracted to an external entity.

### Step 6: Procurer of last resort

The Draft Consultation Paper on page 43 proposes that if

*... the reliability obligation has been triggered and a sufficient reliability gap persists one year out the AER will activate the requirement for retailers to provide details of qualifying contracts.*

Further analysis of how this approach will work appears to be required, as it remains vital that any approach does not raise the moral hazard and other market distortion concerns outlined on page 43 of the February 2018 Draft Consultation Paper. In particular, APPEA notes the comment on this page that

*It is not the intention of the Guarantee for AEMO to become the default procurer of capacity for the NEM.*

## GOVERNANCE OF THE GUARANTEE

APPEA supports the Board's preferred option, outlined on pages 46 of the Draft Consultation Paper, that the Guarantee's governance arrangements be implemented, following COAG Energy Council agreement, through existing governance arrangements for the NEM (and through amendments to the Australian Energy Market Agreement, the National Electricity Law and the National Electricity Rules).

### Advice on including Western Australia in the emissions reduction requirement

The Draft Consultation Paper notes on page 47 that Western Australia has requested the ESB provide advice on how Western Australia might be able to participate in the emissions reduction requirement aspects of the Guarantee.

With this in mind, APPEA notes that if Western Australia is to be included in the emissions component and if it is to be extended outside of the South-West Interconnected System (SWIS), consideration will need to be applied to self-generation and how this relates to the emissions reduction requirement. As APPEA noted in its March 2018 submission to the February 2018 Draft Consultation Paper and in our July 2018 submission on the *National Energy Guarantee Draft Detailed Design for Consultation, Commonwealth Elements, June 2018*, alongside the provisions considered above for trade-exposed



industries, the *Renewable Energy (Electricity) Act 2000* also includes provisions to exempt self-generation from RET obligations<sup>14</sup>.

In addition to recognising the competitive position of projects that self-generate their electricity (such as all of the LNG projects in northern and western Australia), the provisions support self-generation by recognising a substantial proportion of self-generation uses less greenhouse-intensive natural gas or renewables.

The provisions also support efficient commercial decision-making, by allowing projects, particularly those operating in rural and remote areas distant from the grid, to access the most cost-effective form of power supply available to them.

The natural gas industry, including the LNG industry, uses natural gas for self-generation purposes (or proposes to) at many facilities around Australia, mostly in northern and western Australia. For example, once all projects under construction are completed, seven of the ten Australian LNG projects will utilise (or may utilise) the self-generation provisions.

This means that if Western Australia is included in the Guarantee's emissions reduction requirements, and this requirement is extended beyond the SWIS, self-generation provisions must be incorporated into the design of the Guarantee.

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<sup>14</sup> The provisions are contained in subsection 31(2) of the *Renewable Energy (Electricity) Act 2000*.



# Climate change policy principles



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**APPEA has developed these  
climate change policy  
principles to assist policymakers  
in developing efficient and  
effective responses to deal with  
climate change.**

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

Climate policy must be fully integrated and consistent with policies in other areas – including energy, international trade, taxation, economic growth, population, and environmental and social responsibility.



## 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.

Policies 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\\_htmlpdf/application/pdf/conveg.pdf](http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveg.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/resources/docs/2015/cop21/eng/109r01.pdf](http://unfccc.int/resources/docs/2015/cop21/eng/109r01.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.

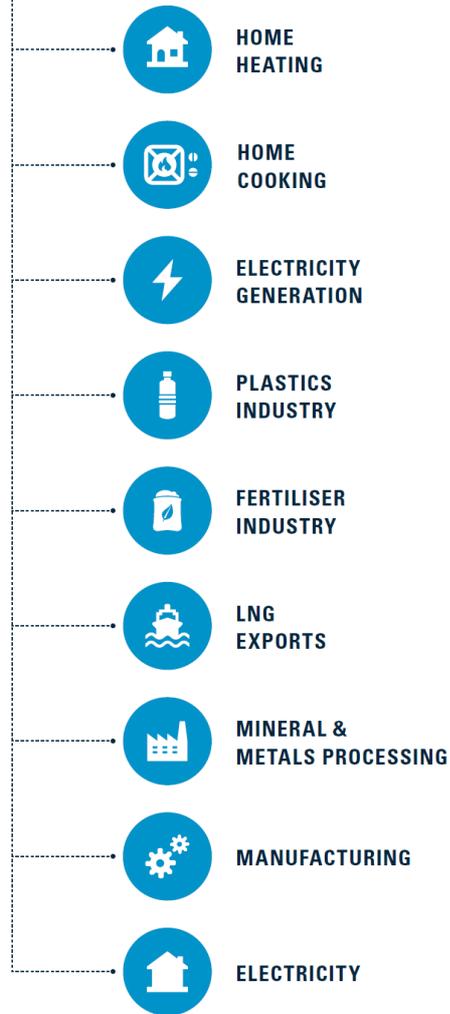
Increasing its use can deliver immediate and substantial carbon savings. Simply switching from coal to natural gas can reduce greenhouse gas emissions by 40-50% and by as much as 75% in some circumstances.<sup>4</sup>

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.

## NATURAL GAS



<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/towards2030/sustainability/carbon-reduction/trigeneration](http://www.cityofsydney.nsw.gov.au/vision/towards2030/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.

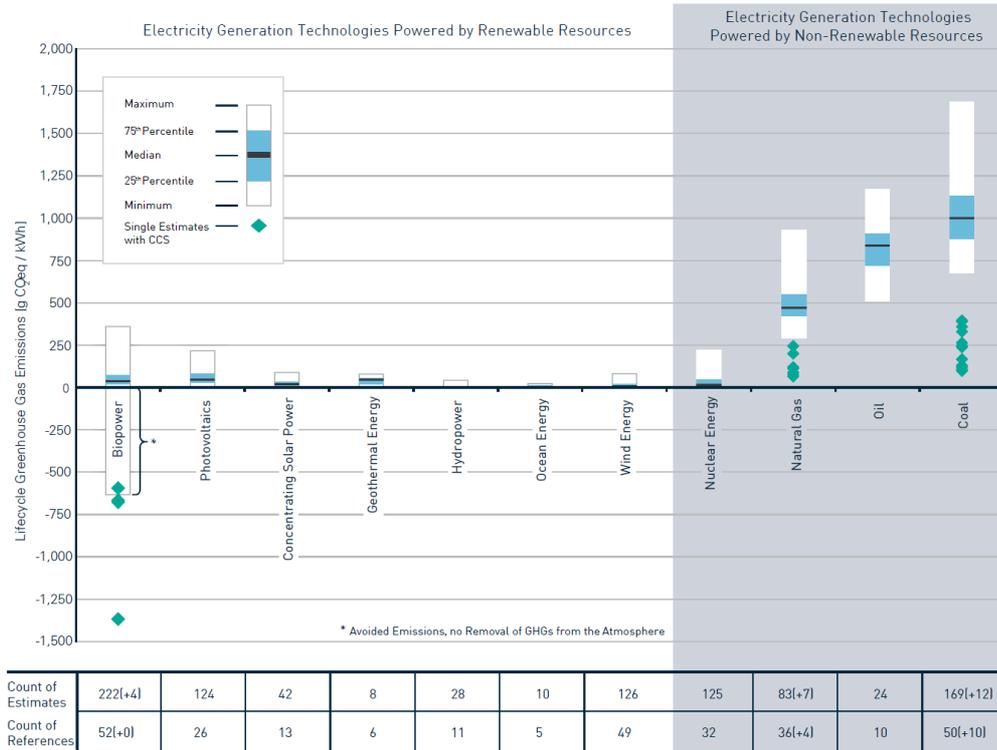
### Other environmental benefits

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>

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