AUSTRALIAN PETROLEUM PRODUCTION & EXPLORATION ASSOCIATION LIMITED

30 SEP 2009

26 September 2008

The Secretary
Select Committee on Fuel and Energy
The Senate
PO Box 6100
Parliament House
Canberra ACT 2600

Email: fuelenergy.sen@aph.gov.au

Dear Committee Secretary

Please find attached a copy of a supplementary submission from The Australian Petroleum Production & Exploration Association (APPEA) Ltd in relation to the Committee's review.

The supplementary submission provides a copy of the APPEA submission to the Australian Governments Carbon Pollution Reduction Scheme Green Paper, and provides APPEA comments on aspects of the "preferred positions" as set out in the Green Paper.

Yours faithfully

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CHIEF EXECUTIVE

Encl.

- *APPEA Supplementary Submission*

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SUBMISSION TO THE CARBON POLLUTION REDUCTION SCHEME GREEN PAPER

SEPTEMBER 2008

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The Commitments

- *"That's why the Australian Government is a big believer in the long term of LNG and in the expansion of LNG in the future",* the Hon Kevin Rudd MP, Prime Minister, 24 July 2008, Darwin, Press Conference.

- *"Labor recognises that the transition to a more carbon constrained economy has the potential to disadvantage emissions intensive trade exposed industries. There is no global environmental benefit to simply shutting down LNG plants... .*

  A Rudd Labor Government will:
  - *Ensure that Australia's international competitiveness is not compromised by the introduction of emissions trading.*
  - *Consult with industry about the potential impact of emissions trading on their operations to ensure they are not disadvantaged.*
  - *Establish specific mechanisms to ensure that Australian operations of emissions intensive trade exposed firms are not disadvantaged by emissions trading"* 22 November 2007, *Labor's Plan for a Strong Resources Sector*, page 9.

- *"Labor supports activities undertaken in Australia that offset emissions elsewhere (for example Liquid Natural Gas Production and export that displaces coal fired generation)"* Labor's 2004 Election Platform, Chapter 8, page 92.

The Principle

A fundamental principle upon which the Australian emissions trading scheme must be premised is the principle recognising that some Australian emissions-intensive trade-exposed industries would expand under a global agreement (all else being equal) and others would not. The underpinning principle to the design of the scheme must be that, in the absence of an international price of carbon, Australia's emissions trading scheme would support Australian production and investment decisions that would be consistent with a global carbon constraint.

- *The reason for payments to trade-exposed, emissions intensive industries ... is to avoid the economic and environmental costs of having firms in these industries ... failing to expand as much as they would in a world in which all countries were applying carbon constraints involving similar costs to our own* (September 2008, Professor Ross Garnaut, Supplementary Draft Report, *Targets and Trajectories*, page 43).

- *It would be a significant failure of public policy if such assistance arrangements* [to EITE industries] *simply sought to compensate businesses for the effect of an Australian emissions trading scheme rather than the failure of our trading competitors to implement comparable policies* (September 2008, Professor Ross Garnaut, Supplementary Draft Report, *Targets and Trajectories*, page 4).

The Rationale

- On latest lifecycle figures, for every tonne of greenhouse gas emissions associated with Australia's production of LNG, 4 tonnes are avoided in Japan and between 5½ and 9½ tonnes are avoided in China, making the LNG industry one of Australia's key 'clean global contributors'.

- To stifle the expansion of Australia's LNG industry would be to deny the Asia-Pacific region a cleaner source of energy to meet their spiralling energy demands given that natural gas produces between 50 and 70 per cent less greenhouse gas emissions than coal when used in electricity generation.

- An expanded Australian LNG industry represents Australia's greatest potential short- to medium-term contribution, by drawing on its vast and growing gas reserves, to assist the world substantially and materially move to a lower-greenhouse gas future.

- Realising Australia's LNG potential will deliver regional development, regional jobs and up to an additional $10 billion per year worth of Government revenue. It is probably Australia's most valuable growth industry with the greatest realistic potential.

- Natural gas is the energy source that will enable Australia, the Asia-Pacific region and the world make the transition to the long-term, no or low carbon future at least economic dislocation.

The Solution

- Australia must do all it can to secure a binding international or sectoral agreement. Once this is secured Professor Garnaut's "dreadful problem" dissolves and features designed to correct any international policy distortions are unnecessary.

- Post Kyoto negotiations on binding targets and scheme design must take account of Australia's potential for more than 400 per cent growth in its LNG industry over the next two decades.

- Until this agreement is secured, Australia's LNG industry must not be subject to a cost of carbon unless its customers and competitors are subject to a similar cost.

- This could be achieved in a number of ways, including:

1. the inclusion of an additional 'clean global contributor' (CGC) mechanism and a materiality threshold for emissions-intensive trade-exposed industries (to be redefined) whose growth in Australia is likely to deliver a substantial 'net' greenhouse gas emissions reduction benefit to the world; or

2. substantial amendments to the definition methodology, thresholds, 'decay' trajectories and the inclusion of a 100 per cent permit allocation.

- Where the CGC test is not met, the industry would be assessed for (redefined) emissions-intensive trade-exposed status.

- Both mechanisms could be accompanied by a form of "benchmarking" – for new investments – against an appropriately defined measure of technically and commercially feasible best practice or another mechanism to ensure they operate in a manner broadly consistent with a carbon constraint (an example may be a version of the Energy Efficiency Opportunities (EEO) scheme, auditing existing and proposed emissions-intensive trade-exposed projects to ensure they are implementing economically and technically feasible emissions mitigation or management processes and practices (that is, processes and practices consistent with currently applied 'best' practice).

EXECUTIVE SUMMARY

The Australian Petroleum Production & Exploration Association (APPEA) welcomes the opportunity to provide comment on the Australian Government's Carbon Pollution Reduction Scheme Green Paper.

Why do we need a strong, vibrant and growing Australian upstream oil and gas industry?

A strong, vibrant and growing industry is essential to the on-going health of the Australian economy. In addition, the upstream oil and gas industry is responsible for:

- Australia's two largest resource projects;
- Australia's largest ever export contract; and
- potentially Australia's single largest greenhouse gas mitigation investment.

The Australian upstream industry operates within a globally competitive environment. It competes for international investment funding and resources, and sells oil and gas within Australia and in competitive international markets.

To optimise the value of its petroleum industry, Australia also needs to constantly monitor its overall competitive position for investment. Clearly, this includes the impact of Australia's greenhouse policies, including an emissions trading scheme. It is vital, therefore, that the introduction of greenhouse policies, most importantly of an emissions trading scheme, is sensitive to the competitive position of the Australian upstream oil and gas industry.

What is the case for natural gas?

Australia's natural gas reserves have the unique potential, in both the short-term and the long-term, to significantly reduce greenhouse gas emissions both domestically, through the greater use of natural gas particularly in electricity generation, and in the Asia-Pacific region, through increased liquefied natural gas (LNG) exports.

This ability sets the industry apart from most industries that will be impacted by the Green Paper.

With gas-fired power generation having between 50 and 70 per cent fewer greenhouse gas emissions than are associated with coal-fired generation, greater penetration of natural gas into the domestic market would produce improved greenhouse outcomes. In addition, on a global lifecycle basis the production, transport and use of LNG generates lower emissions per unit of delivered energy than other fossil fuels (for example, the lifecycle greenhouse intensity for LNG is approximately 40 per cent lower than that of coal).

It is vital, therefore, that Australia's greenhouse policy response, including the design and implementation of an Australian emissions trading scheme, encourages the further use of natural gas both domestically and in the region.

Why must we get the design of an Australian emissions trading scheme "right"?

APPEA supports the Green Paper's overriding objective to get the design of the emissions trading scheme "right". As the Green Paper notes, this requires care

and caution in both design and implementation, to ensure the scheme is capable of delivering ongoing emissions reductions over the long-term while safeguarding macroeconomic stability and securing long-term competitiveness and prosperity.

An assessment of the issues associated with emissions trading schemes: what does success look like?

A number of basic criteria for judging 'good' greenhouse policy have consistently been advocated by APPEA as the basis for assessing an emissions trading scheme, either in isolation and in combination with other policy measures or in comparison to possible alternatives. In essence, they represent criteria by which to judge the success of an emissions trading scheme. The most important test of success is the extent to which competitive and economic distortions are minimised through comprehensive sectoral and geographic coverage at a global level and by allowing temporal flexibility in policy design.

If comprehensive sectoral and geographic coverage at a global level cannot be achieved – as is the case currently – the outcomes delivered by domestic greenhouse policies must be consistent with those that would be achieved if there were comprehensive sectoral and geographic coverage at a global level.

Emissions trading schemes can potentially take many forms and there is significant room for variation between schemes in terms of their design. APPEA notes many of the elements of the basic 'architecture' for the emissions trading scheme proposed in the Green Paper are consistent with APPEA's advocacy. In responding to the issues raised in the Green Paper, the following are addressed in APPEA's submission:

- the scope and coverage of the scheme;
- upstream gas acquittal;
- permit allocation and equity: the role of auctioning;
- strongly affected industries;
- permit caps / gateways;
- banking and borrowing;
- the price cap;
- measurement, monitoring and enforcement;
- international linkages;
- tax and accounting issues;
- the impacts of contracts and regulation on cost pass-through; and
- managing cash flow implications.

Why must treatment of emissions-intensive trade-exposed industries recognise the case for Liquefied Natural Gas (LNG)?

As has been considered and accepted by every major analysis of an emissions trading scheme undertaken in Australia, the implementation of an emissions trading scheme in Australia but not in our customer and competitor nations will result in the escalation in production costs in Australia, which has implemented greenhouse policies, relative to those that have not implemented such policies.

APPEA has long recommended that measure(s) to deal with this international policy distortion must be a central feature of any emissions trading scheme introduced in Australia.

In doing so, it is vitally important to recall why the emissions-intensive trade-exposed issue arises at all – that is, the failure of Governments to reach a global agreement on carbon pricing and the consequent implications for industry competitiveness that arise from unilateral actions by any one Government.

With that in mind, the industry's key objective in considering this issue is to ensure that the Australian LNG industry does not bear an additional cost impact for as long as our competitors and customers are not subject to a similar impost.

The Green Paper discusses the policy rationale for emissions-intensive trade-exposed activity treatment, as being to:

- address some of the competitiveness impacts of the scheme on emissions-intensive trade-exposed industries in order to reduce carbon leakage;
- provide transitional support to emissions-intensive trade-exposed industries that will be most strongly affected by the introduction of a carbon constraint; and
- support production and investment decisions that would be consistent with a global carbon constraint.

APPEA notes this represents, particularly in relation to the first two rationales, a fundamental and inappropriate departure from the Government's pre-election commitments in this area, which were set out above and are to:

- ensure that Australia's international competitiveness is not compromised by Australia's response to climate change;
- ensure that Australian operations of emission-intensive trade-exposed firms are not disadvantaged by emissions trading; and
- consult with industry about the potential impact of emissions trading on their operations to ensure they are not disadvantaged.

The Green Paper's preferred positions, in the case of the LNG industry, risk the perverse outcome of constraining an industry that has the immediate prospect of achieving the scheme's ultimate objective of helping the world to reduce emissions, while contributing to Australia's economic growth.

The industry believes that there is a compelling case for not having the Australian LNG industry bear an additional cost impact for as long as our competitors are not subject to a similar impost.

APPEA also recommends the emissions-intensive trade-exposed treatment proposed be amended to allow for, and in the case of LNG actively encourage, new growth.

Australia must do all it can to secure a binding international or sectoral agreement. Once this is secured Professor Garnaut's "dreadful problem" dissolves and features designed to correct any international policy distortions are unnecessary. Until this agreement is secured, however, Australia's LNG industry must not be subject to a cost of carbon unless its customers and competitors are subject to a similar cost.

There are a number of ways in which the emissions-intensive trade-exposed treatment could be delivered through the White Paper and the associated legislation to ensure that the Australian LNG industry does not bear an additional

cost impact for as long as our competitors are not subject to a similar impost, including:

1. the inclusion of an additional 'clean global contributors' (CGC) mechanism and a materiality threshold for emissions-intensive trade-exposed industries (to be redefined) whose growth in Australia is likely to deliver a substantial 'net' greenhouse gas emissions reduction benefit to the world; or
2. substantial amendments to the definition methodology, thresholds, decay trajectories and the inclusion of a 100 per cent permit allocation.

Where the CGC test is not met, the industry would be assessed for (redefined) emissions-intensive trade-exposed status.

Both mechanisms could be accompanied by a form of "benchmarking" – for new investments – against an appropriately defined measure of technically and commercially feasible best practice or another mechanism to ensure they operate in a manner broadly consistent with a carbon constraint.

However it is delivered, it is vital that the amended emissions-intensive trade-exposed treatment ensure industries such as Australia's LNG industry are not disadvantaged by the absence of a global agreement by bearing any associated costs that are not borne by out international competitors or customer countries.

Can the LNG industry "afford to pay"?

Arguments that the industry can "afford to pay" and fail to recognise the range of factors which influence investment decisions in the Australian LNG industry.

Discussions around a perceived capacity to pay convey an unfounded confidence that companies with multiple global investment choices will invest in new Australian LNG projects. Carbon costs of the kind illustrated implied by the Green Paper would represent a substantial addition to operating costs and a substantial reduction in profit margin.

Most importantly, with competitors not facing comparable costs, the decision about which project proceeds next and whether a particular project proceeds at all, may be affected. The omitted or deferred investment funds would be spent elsewhere to no global emissions benefit.

Why is assessing the impacts of greenhouse policies so important and what is the role of the economic modelling exercise(s) underway through the Australian Treasury?

APPEA joins with other stakeholders that have expressed their concerns at both the lack of transparency, consultation and timeliness associated with this modelling exercise. APPEA recommends the modelling assumptions and results be released for full and open public consultation as soon as possible and the opportunity be made available to stakeholders for issues raised in the Green Paper to be revisited on the basis of the modelling results.

1. INTRODUCTION

The Australian Petroleum Production & Exploration Association (APPEA) is the peak national body representing the Australian upstream oil and gas industry. APPEA member companies collectively produce around 98 per cent of Australia's oil and gas. Further details about APPEA can be found at our website, at www.appea.com.au.

APPEA has been engaged in the greenhouse policy debate since its inception and has, for example, participated in every major consideration of emissions trading schemes in Australia, commencing with the Australian Greenhouse Office discussion paper series in 1999 and including, more recently, the work of the States and Territories through the National Emissions Trading Task Force from 2005 to 2008, the work of the Prime Ministerial Task Group on Emissions Trading in 2006 and 2007 and the work of the Garnaut Climate Change Review in 2007 and 2008.

With that in mind, APPEA welcomes the opportunity to provide comment on the Australian Government's Carbon Pollution Reduction Scheme Green Paper.

As part of its commitment to addressing greenhouse issues, APPEA was an original signatory to the Greenhouse Challenge Program in 1996[1]. Greenhouse Challenge (now Greenhouse Challenge Plus) members from the upstream oil and gas industry have abated over 22 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e) since that time. Overall, emissions from the upstream oil and gas industry account for less than 4 per cent of Australia's total emissions.

In addition, the industry is likely to play a key role in accelerating the development of carbon capture and storage (CCS) technologies in Australia, identified and supported by the Government as a critical greenhouse gas mitigation technology for Australia.

The oil and gas industry has considerable expertise in utilising and developing the technologies that are required for CCS both in Australia and on the international stage:

- in Australia through, for example, the former Australian Petroleum Cooperative Research Centre (GEODISC) and the current Cooperative Research Centre for Greenhouse Gas Technologies

[1] Greenhouse Challenge Plus is designed to reduce greenhouse gas emissions, accelerate the uptake of energy efficiency, integrate greenhouse issues into business decision-making and provide more consistent reporting of greenhouse gas emissions levels. The APPEA Chief Executive is currently the Industry co-Chair of the Industry-Government Greenhouse Partnership Committee, that provides a forum for consultation on the key issues impacting on Greenhouse Challenge Plus and to ensure the effective development and operation of the program. (see www.environment.gov.au/settlements/challenge/members/iggpc.html) for further information.

(CO2CRC) and the industry's proposed Gorgon Project[2], Moomba Carbon Storage Project[3] and Browse Project[4]); and

- on the international stage, through, for example, the Sleipner[5], Weyburn[6], In Salah[7] and Snøhvit[8] projects).

APPEA is also a member of the Australian Industry Greenhouse Network (AIGN), a network of industry associations and individual businesses which 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[9]. APPEA has contributed to the AIGN submission to the Green Paper.

In addition to the APPEA submission, a number of APPEA members have made individual submissions to the Green Paper. APPEA's members have a range of views on greenhouse policy, and on emissions trading schemes in particular. This response should be read in conjunction with the submissions from individual APPEA members.

APPEA, and its members, are committed to working towards a profitable, safe, environmentally and socially responsible oil and gas exploration, development and production industry.

Governments need to continue to recognise that greenhouse policies, including any consideration of an emissions trading scheme, must allow Australian industry to maintain its international competitiveness.

APPEA works with governments and other stakeholders to achieve credible industry actions and governmental greenhouse policies that address greenhouse concerns in an economically and commercially viable way, including ways to maintain international competitiveness. As

[2] The Gorgon Project (operated by Chevron Australia in joint venture with ExxonMobil and Shell), as part of a comprehensive greenhouse gas management plan, proposes to significantly reduce greenhouse gas emissions via the injection of reservoir carbon dioxide into the subsurface. The Gorgon Project would thereby include the largest commercial scale CCS project in the world and would represent the largest single investment contemplated purely for the management of greenhouse gas emissions. See www.gorgon.com.au for further information.

[3] The Santos operated Moomba Carbon Storage Project (which also involves Origin Energy and Beach Petroleum) is a project that has the long-term objective of establishing a large-scale carbon storage hub at Moomba, which could eventually store up to 20 Mt CO_2-e per year and 1 billion tonnes over the life of the project (see www.santos.com/Content.aspx?p=340 for further information).

[4] The Browse Project (operated by Woodside Energy in joint venture with BHP Billiton, BP, Chevron and Shell), is considering a range of geosequestration and other greenhouse gas mitigation options (see www.woodside.com.au/Our+Business/Development/Browse/Browse+LNG+Development/Background.htm for further information).

[5] See www.statoilhydro.com/en/TechnologyInnovation/ProtectingTheEnvironment/CarbonCaptureAndStorage/Pages/CarbonDioxideInjectionSleipnerVest.aspx for further information.

[6] See www.encana.com/operations/canada/weyburn/index.htm for further information.

[7] See www.bp.com/sectiongenericarticle.do?categoryId=426&contentId=2000566 for further information.

[8] See www.statoilhydro.com/en/TechnologyInnovation/ProtectingTheEnvironment/CarbonCaptureAndStorage/Pages/CaptureAndStorageSnohvit.aspx for further information.

[9] See www.aign.net.au for further information.

part of this, the upstream oil and gas industry's *Greenhouse Response Strategy* is a public statement, released in 2003, of the industry's approach to greenhouse policy. A copy of the APPEA *Greenhouse Response Strategy* can be found at **Attachment 1**[10].

In addition, the industry, in 2006, embarked on the development of an Upstream Oil and Gas Industry Strategy. Lead by APPEA in consultation with the State, Territory and Australian Government officials, the objective of the Strategy is:

> *... to ensure the value of Australia's oil and gas resources to the Australian people is maximised, petroleum energy security delivered and long-term sustainability of an Australian oil and gas industry assured.*

The Strategic Leaders' Report, *Platform for Prosperity*, was released in April 2007[11] and provides an overview of the opportunities and challenges facing the Australian upstream oil and gas industry, the issues that could prevent the opportunities from being fully realised, and the options for addressing those issues. This includes greenhouse issues, where the report, on page 47, considered as an option:

> *... following an examination of the costs and benefits for industries such as the upstream oil and gas industry, Australia considers the introduction of a market mechanism— for example, a national emissions trading system, linked to an international regime that places a price on carbon— to incorporate the economic, environmental and social costs and benefits of energy resources in a way that does not increase costs for trade-exposed industries.*

With this in mind, APPEA's submission has been generally organised to address specific sections of the Green Paper. However, the submission does not directly address every aspect of the Green Paper. Rather, it focuses on those areas that are particularly important for Australia's upstream oil and gas industry.

APPEA's response is also framed against the overall objective that the Government has set for the Green Paper, as outlined on page 14:

> *... to meet Australia's emissions reduction targets in the most flexible and cost-effective way; to support an effective global response to climate change; and to provide for transitional assistance or the most affected households and firms.*

[10] The *Greenhouse Response Strategy* can also be downloaded from the APPEA website, at www.appea.com.au/content/pdfs_docs_xls/PolicyIndustryIssues/APPEAGreenhouseResponseStrategyNov03.pdf.

[11] See www.appea.com.au/index.php?option=com_content&task=blogcategory&id=79&Itemid=81 for further information about the Industry Strategy process and www.appea.com.au/content/pdfs_docs_xls/IndustryStrategy/Strategic%20Leaders%20Report.pdf for a copy of the *Platform for Prosperity* report.

Very importantly, APPEA's comments are also made within the context of the pre-election commitments[12] provided by the Government, and supported by APPEA, to:

- *ensure that Australia's international competitiveness is not compromised by Australia's response to climate change;*
- *ensure that Australian operations of emission intensive trade exposed firms are not disadvantaged by emissions trading; and*
- *consult with industry about the potential impact of emissions trading on their operations to ensure they are not disadvantaged.*

The vital nature of these commitments will be further considered in Section 5.

2. THE AUSTRALIAN UPSTREAM OIL AND GAS INDUSTRY

It is important to place the APPEA's views on the issues raised by the Green Paper within the context of the current 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.

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.

A strong, vibrant and growing industry is essential to the on-going health of the Australian economy.

In addition, as will be considered further below, the upstream oil and gas industry is responsible for:

- Australia's two largest resource project – the North West Shelf Project[13] and the Pluto LNG Project[14];
- Australia's largest ever export contract – the contract to supply liquefied natural gas (LNG) from the North West Shelf Joint Venture to the Guangdong Dapeng LNG project in southern China; and

[12] Australian Labor Party (2007), *Labor's Plan for a Stronger Resources Sector*, 22 November (available at www.alp.org.au/download/now/071122__labors_plan_for_a_stronger_resources_sector222.pdf).
[13] For more information about the North West Shelf Project and the contract to supply LNG to the Guangdong Dapeng LNG project, see www.woodside.com.au/Our+Business/Production/Australia/North+West+Shelf.
[14] See www.woodside.com.au/Our+Business/Projects/Pluto for further information.

- actively pursuing Australia's single largest greenhouse gas mitigation investment – the geosequestration project as part of the Gorgon LNG Project[15] – amongst a range of other significant and important greenhouse gas mitigation investments[16].

2.1 An overview of the Australian upstream oil and gas industry

An overview of the industry's economic contribution, structure, the global context within which the Australian industry operates and Australia's competitive position, reveals that:

- oil and gas account for 33 per cent and 21 per cent respectively of Australia's primary energy consumption. In 2007-08, the estimated value of oil and gas production in Australia was over $23 billion while tax payments to the Australian and State and Northern Territory Governments totalled more than $8.1 billion;

- exports of petroleum, including crude oil, liquefied petroleum gas (LPG), LNG and refined petroleum products, totalled $19.7 billion in 2007-08 and are Australia's third largest commodity income earner;

- the industry directly employs more than 21,000 Australians and through companies providing goods and services to the industry – suppliers, contractors and support companies – indirectly employ more than 30,000 people;

- historically, gas supplies in the east of the country have focussed exclusively on servicing the domestic market. Recent years have seen major coal seam gas (CSG) developments in Queensland and New South Wales add to east coast natural gas supplies

  - significantly, this has resulted in recent proposals concerning the establishment of an LNG export industry on the east coast of Australia, exporting LNG from Queensland

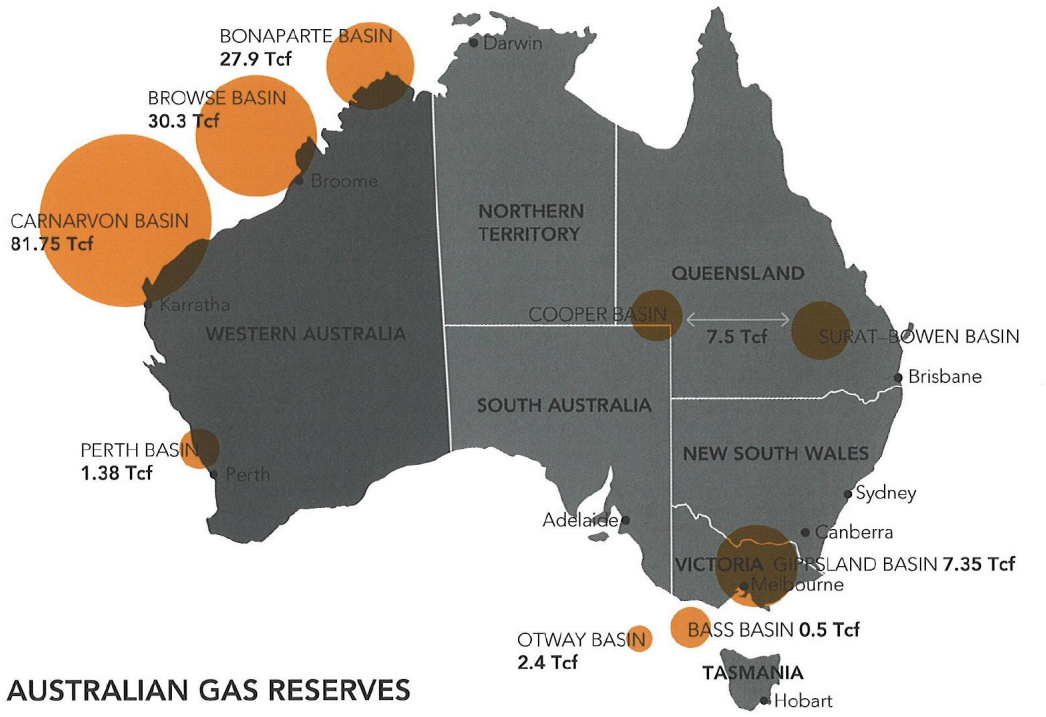
  - were these projects to proceed, they would be unique to Australia in using CSG, sourced from Queensland's extensive coal deposits, as the fuel source; and

- Geoscience Australia estimated (in 2006) Australia's oil and condensate reserves are equivalent to around 14 years of production at current production rates. Australia's conventional natural gas reserves are equivalent to a very substantial 100 years of production.

[15] For more information about the Gorgon LNG Project's greenhouse gas mitigation plans, see www.gorgon.com.au/03moe_greenhouse.html.
[16] Such as the Moomba Carbon Storage Project and Browse LNG Project outlined in Section 1 above.

The following map[17] shows the location and size of Australia's major natural gas deposits and associated reserves (noting these reserves estimates are based on 'proved and probable' (2P) reserves, meaning the estimates are based on median estimates of the accumulation that are more likely to be recovered than not)[18].

Figure 1: Australian Gas Reserves, 2008



Source: Australian Government (2008).

2.2 Australia's competitive position

The Australian upstream oil and gas industry operates within a globally competitive environment. It competes for international investment funding and resources, and sells oil and natural gas within Australia and in competitive international markets.

Australia is generally perceived to offer relatively low prospectivity for oil with relatively low discovery rates and small average field sizes. Gas prospectivity is good but Australia already has many large undeveloped gas fields and new conventional natural gas discoveries are often remote from markets and difficult to commercialise.

[17] Australian Government (2008), *Australian Liquefied Natural Gas (LNG) – Clean Energy for a Secure Future*, prepared by the Department of Resources, Energy and Tourism, July (see www.ret.gov.au for further information).
[18] See, for example, www.spe.org/spe-site/spe/spe/industry/reserves/GlossaryPetroleumReserves-ResourcesDefinitions_2005.pdf for further information.

The upstream oil and gas industry is highly capital intensive and tens of billions of dollars of capital will be needed over the next two decades if frontier exploration is to expand and new oil and gas projects are to be developed.

Australia has offered a reasonably attractive petroleum investment environment (with some exceptions, for example, the tax depreciation arrangements for long-lived assets is not internationally competitive – this is an issue further considered by APPEA through the Upstream Oil and Gas Industry Strategy process) in the past and developed a reputation as being a generally "sound place to do business".

Australia's relatively low sovereign risk, transparent legal and regulatory processes, stable political and economic environment, competitive markets and solid investment in pre-competitive geoscience research are significant advantages which encourage global oil companies to direct a part of their activity and investment to Australia.

Most companies will seek to have a spread of investments across the risk/return spectrum and Australia fits into that part of the spectrum offering lower risk than many other parts of the world.

In recent years Australia's perceived exploration risk for oil has increased due to the lack of oil exploration success. Australia has therefore moved up the oil exploration risk curve. This perception of higher risk needs to be offset by a commensurate increase in expected returns, particularly for exploration in high-risk frontier areas.

Development risk in Australia is also increasing. Oil project developments have tended to be in deeper water and more technically challenging. The large capital requirements, long construction periods and long payback periods associated with remote LNG projects also increase Australia's risk profile.

The specific competitive position facing Australia's LNG industry – and Australia's place as an LNG exporter into the Asia-Pacific LNG market – will be considered in further detail in Section 5.4.

To optimise the value of its petroleum industry, Australia also needs to constantly monitor its overall competitive position for investment.

Clearly, this includes the impact of Australia's greenhouse policies, including any consideration of an emissions trading scheme.

It is vital, therefore, that the introduction of any emissions trading scheme is sensitive to the competitive position of the Australian upstream oil and gas industry.

3. THE CASE FOR NATURAL GAS

3.1 Background: the importance of natural gas as a low greenhouse gas emissions energy source

Governments around the world, including in Australia, have recognised that for the foreseeable future the world economy will remain dependent on fossil fuels[19].

As will be considered in Sections 3.1.1 and 3.1.2, Australia's natural gas reserves have the unique potential, in both the short-term and the long-term, to significantly reduce greenhouse gas emissions both domestically, through the greater penetration of natural gas in the domestic market particularly in electricity generation, and in the Asia-Pacific region, through increased LNG exports. This ability sets the industry apart from most industries that will be impacted by the Green Paper.

3.1.1 The importance of natural gas as a low greenhouse gas emissions energy source in Australia

There is an opportunity for Australia to generate significant additional national economic, environmental and social benefits from its substantial natural gas reserves including via:

- the creation of a less carbon intensive national electricity market. In contrast to longer-term possibilities around 'low emission' electricity generation technologies, natural gas technologies available today produce only 30 to 50 per cent of the emissions produced by current coal technologies in generating electricity

  - according to the Commonwealth Scientific and Industrial Research Organisation (CSIRO), current generation coal fired power stations produce between 800 and 1,300 kg of CO_2 per megawatt hour (MWh)of generation while a combined cycle gas turbine (CCGT) power station produces around 350 to 360 kg/MWh[20]

  - by using more natural gas in power generation, from today, Australia could significantly enhance its ability as a nation to meet our increasing energy needs but at the same time minimising greenhouse gas emissions;

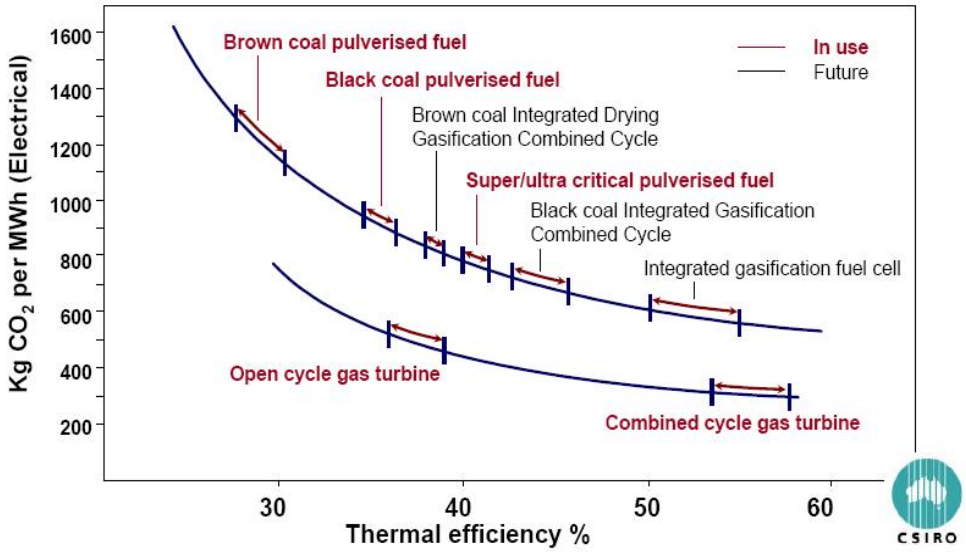
- an expansion of the use of gas in resource processing, with consequent reduction in the carbon intensity of the resource processing sector;

[19] See, for example, International Energy Agency (2008), *World Energy Outlook 2008* (available at www.worldenergyoutlook.org/2008.asp) and Energy Information Administration (2008), *International Energy Outlook 2008* (available at www.eia.doe.gov/oiaf/ieo/index.html).
[20] Energy Futures Forum (2006), *The Heat is on: the future of energy in Australia,* December (see www.csiro.au/science/EnergyFuturesForum.html for further details).

- development of alternative transport fuels to enhance supply reliability and lower carbon intensity;
- improvements in energy market security and efficiency, for example, CCGT power station lead times and capital costs are lower for gas developments compared to coal. This allows for better staging of incremental development to meet demand requirements; and
- development of new chemical industries.

In the case of greenhouse gas emissions, Figure 2 below graphically illustrates the greenhouse gas emission benefits of gas-fired generation. It shows that, unless CCS is viable, CCGT generation will remain by far the fossil fuel generation technology with the lowest greenhouse gas emissions.

Figure 2: CO_2 emissions reduced per unit electrical output



Source: Wright, Dr J (2007), CSIRO –Energy Transformed Flagship

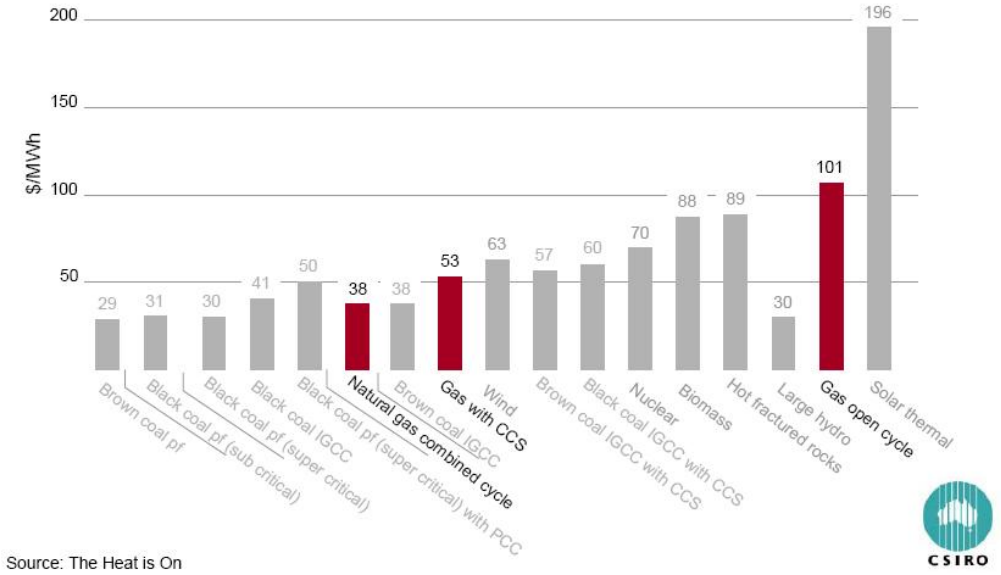
Similarly, work commissioned for the Uranium Mining, Processing and Nuclear Energy Review, and presented its in report *Uranium Mining, Processing and Nuclear Energy – Opportunities for Australia?*[21] released in December 2006, found that greenhouse gas emissions from a 1,000 MW power plant operating at an average 85 per cent capacity utilisation would be approximately 8.7 Mt CO_2-e/year for a subcritical brown coal fired power plant, approximately 6.4 Mt CO_2-e/year for a supercritical black coal fired plant and 4.3 Mt CO_2-e/year for a CCGT plant. This means that over a lifetime of 40 years, the greenhouse gas emissions savings from a CCGT power plant would be 178 Mt CO_2-e relative to a brown coal plant and 85 Mt CO_2-e relative to a black coal plant. As a

[21] See pandora.nla.gov.au/pan/66043/20070301-0000/www.pmc.gov.au/umpner/docs/nuclear_report.pdf for further information.

reference point, Australia's total electricity sector greenhouse gas emissions in 2006 were around 205 Mt CO_2-e[22].

In addition to its greenhouse friendly nature, natural gas represents a cost competitive energy source. This is particularly so when you consider the generation costs of natural gas compared to other energy generation technologies, particularly coal, which shows (Figure 3) the cost differential between current energy sources is not significant.

Figure 3: Estimated electricity generation costs of selected centralised electricity generation technologies



3.2.2 *The importance of natural gas as a low greenhouse gas emissions energy source in the Asia-Pacific region*

Australia's LNG industry is in a unique position not only to contribute substantially to the economic development of the nation but also to help minimise the growth of greenhouse gas emissions in the Asia-Pacific region. The vast reserves of natural gas located in close proximity to growing Asia-Pacific markets make Australia well-placed to positively assist in meeting the global climate change challenge while substantially contributing to Australia's economic growth.

The nature of the Asia-Pacific LNG market, and Australia's role as an LNG exporter, will be considered further in section 5.4. This section outlines the economic and environmental benefits of Australia's existing and potential future LNG exports to Australia and to the Asia-Pacific region.

The greenhouse benefits of LNG as a clean burning fuel source are well established and have long been recognised, including by the Australian Government. For example, in the report, *Australian Liquefied Natural Gas*

[22] Australian Government (2008), *Australia's National Greenhouse Gas Accounts: National Inventory by Economic Sector 2006*, (available at www.climatechange.gov.au/inventory/2006/pubs/inventory2006-economic.pdf).

(LNG) – Clean Energy for a Secure Future[23] (a copy of which can be found at **Attachment 2**), the Minister for Resources, Energy and Tourism, the Hon Martin Ferguson AM MP, noted:

> *The technical, economic and environmental advantages of liquefied natural gas (LNG) have made it a global fuel of choice.*
>
> *The Australian, Western Australia and Northern Territory Governments, and the industry, share a vision for a strong, internationally competitive LNG industry.*

More recently, the Prime Minister, the Hon Kevin Rudd MP, put on record his support for the industry. As a media conference in Darwin on 24 July 2008, the Prime Minister noted[24]:

> *… the Australian Government is a big believer in the long-term of LNG and in the expansion of LNG in the future.*

For now and for a considerable time into the future, LNG offers a greenhouse advantage in that it is low in emissions compared to other fossil fuels.

Box 1: What is LNG?[25]

Liquefied natural gas (LNG) is natural gas that has been cooled to the point that it condenses to a liquid, which occurs at a temperature of approximately -161°C and at atmospheric pressure.

Liquefaction reduces the volume by approximately 600 times, making it more economical to transport between continents in specially designed ocean vessels. LNG technology makes natural gas available throughout the world.

On a global lifecycle basis[26] the production, transport and use of LNG generates significantly lower emissions per unit of delivered energy than alternative fossil fuels:

- a 1996 study by the CSIRO[27] found that North West Shelf LNG, when used for electricity generation in Japan, produced lifecycle emissions

[23] Australian Government (2008), *Australian Liquefied Natural Gas (LNG) – Clean Energy for a Secure Future*, prepared by the Department of Resources, Energy and Tourism, July (see www.ret.gov.au for further information).
[24] Rudd MP, the Hon Kevin (2008), *Joint Press Conference with the Chief Minister of the Northern Territory, Paul Henderson*, Darwin, 24 July (available at www.pm.gov.au/media/Interview/2008/interview_0378.cfm).
[25] For more information, see www.gorgon.com.au/06-news/factsheets/Gorgon%20Fact%20Sheet%20-%20What%20is%20LNG.pdf.
[26] For LNG, this lifecycle includes extraction in Australia, processing/liquefaction in Australia, transport/shipping to the export customer, regasification in customer country, combustion/power generation in that country while for black coal, this includes mining and processing in Australia, transport/shipping to the export customer, combustion/power generation in the customer country.
[27] CSIRO (1996), *Lifecycle emissions and energy analysis of LNG, oil and coal*, December.

of approximately 470 kilograms of carbon dioxide equivalent per megawatt hour equivalent (kg CO_2-e/MWh-e)

- this was substantially lower than emissions generated from oil produced from the Middle East (around 700 kg CO_2-e/MWh-e) or coal from the east coast of Australia (around 830 kg CO_2-e/MWh-e)

- these figures show that natural gas (from LNG) used in electricity generation has 43 per cent lower lifecycle emissions than coal

- in summary, the CSIRO study shows that for every tonne of CO_2-e emitted in LNG production within Australia, 4 tonnes of emissions from the coal alternative can be avoided globally

- this work has been updated and validated in 2008 through a report commissioned from WorleyParsons[28]. The study provides a comparison of Australian LNG exports from the North West Shelf Project with Australian east coast black coal exports in terms of lifecycle greenhouse gas emissions: from extraction and processing in Australia through to an end use of combustion in China for power generation

  - it shows that for every tonne of CO_2-e emitted in LNG production within Australia, between 5½ and 9½ tonnes of emissions from the coal alternative can be avoided globally

  - it is clear from the data shown in the report that LNG has a substantially lower greenhouse footprint associated with it compared to coal –not just in reference to the combustion emissions, but throughout its lifecycle

  - the study shows that the lifecycle greenhouse intensity for LNG is approximately 40 per cent lower than that of coal.

This means that the benefits to Australia and internationally from, in particular, the greater use of gas as a lower greenhouse gas emitting energy source, are considerable.

3.2.3 The broader economic and social benefits of a strong, vibrant and growing upstream oil and gas industry

As was considered above, the upstream oil and gas industry, through the Upstream Oil and Gas Industry Strategy, has –in consultation with State, Territory and Australian Government officials –set itself a number of growth targets over the next decade, including that by 2017:

- exports of LNG will reach 50-60 million tonnes per year (Mtpa), up from around 15½ Mtpa currently;

[28] WorleyParsons (2008), *Greenhouse Gas Emissions Study of Australian LNG*, July.

- natural gas used in resources processing will double; and

- in a competitive electricity market, 70 per cent of all new electricity generation capacity installed in Australia over the next decade is gas-fired.

If these targets are met, global emissions avoided could total at least 180 Mt CO_2-e a year by 2017 compared with an alternative of coal being used to meet the energy requirements of Australia's LNG customers (at least 120 Mt) and the growth in energy demand in Australia's industrial and electricity generation sectors (around 60 Mt).

Reaching the aspirational targets established through the *Platform for Prosperity* report would also have significant economic and social benefits for Australia.

Economic modelling commissioned from economic consultants CRA International[29] and conducted by Access Economics utilising their Access Economics General Equilibrium Model (AE-GEM) shows that if Australia achieves the aspirational targets set out in the *Platform for Prosperity* report over the period to 2017, then we can expect:

- an increase of between $13 billion and $55 billion in GDP in net present value terms which is equivalent to adding between 0.24 and 0.31 percentage points to Australian GDP growth in 2017;

- an increase in real consumption of between $500 million and $21 billion in net present value terms over the period to 2017;

- an increase in Australian exports leading to an improvement in our trade balance of $1.6 billion by 2017;

- the generation of new jobs in the oil and gas and construction industries – in 2012 at the height of the construction boom expected to be associated with the strategy 52,000 new jobs will be generated;

- the diversification of Australia's energy economy with increased penetration of gas in the domestic manufacturing industry; and

- a major boost to remote regional economies particularly in Western Australia, Queensland and the Northern Territory.

[29] CRA International (2007), *Implications of achieving the Upstream Oil and Gas Industry Strategy Targets*, April (available at www.appea.com.au).

Given the significant and sustained greenhouse, broader environmental and economics benefits that flow directly from a strong, vibrant and growing Australian upstream oil and gas industry, it is vital, therefore, that Australia's greenhouse policy response, including the design and implementation of an Australian emissions trading scheme, encourages the further use of natural gas both domestically and in the region.

4. AN AUSTRALIAN EMISSIONS TRADING SCHEME: GENERAL ISSUES AND ISSUES OF PARTICULAR IMPORTANCE TO THE UPSTREAM OIL AND GAS INDUSTRY

This section provides an overview of the issues associated with the Australia emissions trading scheme as proposed in the Green Paper and key issues from an upstream oil and gas industry perspective.

4.1 Background

Global population and economic activity are projected to expand in coming decades, particularly in developing countries, as they aspire to meet a variety of economic and social development goals.

Although uncertainty exists around the projected future level of emissions, in the absence of emissions constraints, projections indicate atmospheric greenhouse gas concentrations will rise significantly. There are several noteworthy publications that examine the science and economics of climate change, including the Intergovernmental Panel on Climate Change's (IPCC)[30] various assessment reports, the International Energy Agency (IEA) *Energy Technology Perspectives*[31] and numerous other energy reports, the *Stern Review of the Economics of Climate Change*[32] and the various reports of the Garnaut Climate Change Review[33].

Greenhouse policies will have far reaching implications for all energy producers and users. Many governments in (overwhelmingly) developed countries have already imposed some form of policy designed to mitigate the growth in greenhouse gas emissions. As has been noted previously and is reinforced by the Green Paper and as is well understood by the upstream oil and gas industry, measures introduced to date by both the former and new Australian Government and State/Territory governments are already imposing a net (and growing) carbon cost on the Australian economy.

In providing a signal that greenhouse gas emissions result in negative externalities, emissions of greenhouse gases are priced either explicitly or implicitly, and the cost of emitting activities rises. The policy instruments

[30] See www.ipcc.ch for further information.
[31] See www.iea.org/w/bookshop/add.aspx?id=330 for further information.
[32] See www.hm-treasury.gov.uk/Independent_Reviews/stern_review_economics_climate_change/sternreview_index.cfm for further information.
[33] See www.garnautreview.org.au for more information.

used for this purpose can be both efficient and inefficient. For example, the current and proposed to be significantly expanded mandatory Renewable Energy Target (RET) – and the range of similar targets introduced or proposed to be introduced in the various Australian jurisdictions – represent an inefficient approach that leads to the imposition of a higher cost on the economy than would result if the same level of abatement were to be achieved using a more efficient instrument. This important issue is considered further in section 7.2.

Regardless of the instrument used the end result is an increase in production costs (to a greater or lesser extent depending on whether or not the scheme appropriately and effectively accounts for the impacts on emissions-intensive trade-exposed industries in Australia, an issue considered in detail in section 5) for emissions-intensive industries, part of which may be passed through to consumers as higher prices for final products or to suppliers in the form of lower prices for intermediate inputs, and part of which will be borne by the producers themselves (subject to the relative elasticities of supply and demand, of which, for upstream oil and gas industry, the degree of trade exposure is a key determinant). Higher costs typically translate to lower demand, unless cleaner, less expensive methods of production can be found.

Substantial changes in technology will be required to stabilise atmospheric greenhouse gas emissions at a level that, consistent with the United Nations Convention on Climate Change[34], *"would prevent dangerous anthropogenic interference with the climate system"*, while still allowing countries to meet their development goals. A strategy of technology development will be necessary to ensure that any mitigation targets are met. They will also need to be placed within a broader framework including energy efficiency, emissions limitation from non-energy sources and adaptation to climate change[35].

The degree of technological change that will be required over the timeframe involved is significant. A mix of policies will be required to assist this process and policy stringency will likely need to increase over time to meet the challenge of stabilising greenhouse gas concentrations in the atmosphere. A requirement for large reductions in emissions and relatively rapid change in technology would necessitate a fundamental shift in the Australian (and global) energy system.

To mitigate the cost to society of greenhouse policies, a steady transition to cleaner production methods should be facilitated, to prevent the bulk early retirement of existing capital stock.

As such, climate change is a global, long-term, decades scale problem that requires a global solution, but one with clear implications for current investment and policy decisions.

[34] See www.unfccc.int for further information.

[35] The role of each of these measures is considered in more detail in the APPEA *Greenhouse Response Strategy*.

This has been reinforced by work released on 21 August 2008 by the Business Council of Australia. Their report, *How Emissions Trading Can Work for the Environment and the Economy*[36], confirms, on page 11, that substantial investments will be required to transition Australia's electricity generation to low-emissions technologies. The report also highlights that many low-emissions technologies – with the notable exception of natural gas – are still under development and will not be available to any substantial degree until after 2020.

As has been noted by the Green Paper and has been noted by every major consideration of emissions trading in Australia and internationally, it is unlikely that a comprehensive international agreement to support a global emissions trading scheme will emerge in the near future.

However, the European Union will continue its emissions trading scheme beyond 2012 and a number of individual countries, and potentially groups of countries, are in the process of, or propose to, implement emissions trading schemes. The result of this would be what has been referred to as a 'constellation' or 'patchwork' of different national and regional schemes. This has implications for the international linkages that might be contemplated under the Australian emissions trading scheme, an issue considered further in section 4.3.9.

4.2 An assessment of issues associated with emissions trading schemes: criteria for measuring success

Many possible criteria may be used to assess the greenhouse policy instruments, including their environmental effectiveness, cost effectiveness, administrative and political feasibility, distribution considerations, government revenues, wider economic effects and effects on technical progress.

APPEA supports the Green Paper's overriding objective, as set out on page 10, to get the design of the emissions trading scheme "right". As the Green Paper notes, this requires care and caution in both design and implementation, to ensure the scheme is capable of delivering ongoing emissions reductions over the long-term while safeguarding Australia's hard-earned macroeconomic stability and securing our long-term competitiveness and prosperity.

The basic principles for judging 'good' greenhouse policy advocated by APPEA (and as the basis for assessing the success of an emissions trading scheme, either in isolation or in comparison to possible alternatives) are:

- economic efficiency;
- environmental effectiveness; and

[36] Business Council of Australia (2008), *How Emissions Trading Can Work for the Environment and the Economy*, incorporating Port Jackson Partners Limited (2008), *Bringing specific company economic perspectives to bear on the ETS design*, report to the Business Council of Australia, 21 August (available at bca.com.au/DisplayFile.aspx?FileID=468).

- equity.

The following considers how these principles apply and, importantly, how they can be appropriately 'operationalised' in the context of the Green Paper, from an upstream oil and gas industry perspective.

Economic efficiency

- competitive and economic distortions should be minimised through comprehensive sectoral and geographic coverage at a global level and by allowing temporal flexibility in policy design. In particular, distortions between energy sources (particularly those that disadvantage gas) should be removed

  - as part of this, if comprehensive sectoral and geographic coverage at a global level cannot be achieved – as is the case currently – domestic greenhouse policies should seek to achieve outcomes consistent with those that would be achieved if there were comprehensive sectoral and geographic coverage at a global level. As will be considered in further detail in section 5, this has important implications for the LNG industry, which can be expected to grow strongly under a global carbon constraint;

- any revenue raised from greenhouse policies should be recycled with a preference for measures that promote economic efficiency and investment in low emissions technology;

- market-based solutions should be preferred over 'command and control' mechanisms;

- the evolution of greenhouse policy should depend on what is learned over time about the magnitude and impacts of climate change and be capable of adjustment in line with evolving scientific evidence;

- administrative costs should be minimised by avoidance of complex policy design;

- emissions mitigation and CCS can have equivalent effects on the climate and therefore should be encouraged; and

- greenhouse policy should incorporate both mitigation and adaptation components.

Environmental effectiveness

- a well-defined process is required to ensure that emission abatement is undertaken in all countries, including developing countries, if the aim is to stabilise the concentrations of greenhouse gases in the atmosphere;

- greenhouse policies should recognise the unique nature of natural gas as a low emissions technology source able to provide a significant and immediate greenhouse benefit to Australia and the region; and

- policies should not encourage the leakage of emissions-intensive production to regions with less stringent emission abatement policies.

Equity

- policy settings should avoid net windfall gains accruing to countries or within countries. Efforts should also be made to avoid unintended outcomes; and

- policies should facilitate the application and deployment of best practice and cleaner technologies, particularly gas-related technologies, across countries or sectors within countries.

4.3 An assessment of the key design features of emissions trading schemes

Emissions trading schemes can potentially take many forms and there is significant room for variation between schemes in terms of their design. In responding to the issues raised in the Green Paper, APPEA has, as noted above, focussed on the key issues from an upstream oil and gas industry perspective.

The design of any proposed emissions trading scheme may pose a number of additional issues and questions, many of which have been raised by the Green Paper, including:

- the scope and coverage of the scheme (Section 2 of the Green Paper);

- upstream gas acquittal (Sections 2.5.3 –2.5.4);

- permit allocation and equity: the role of auctioning (Section 7);

- strongly affected industries (Section 10);

- permit caps / gateways (Section 4);

- banking and borrowing (Section 3.4);

- the price cap (Section 3.5);

- measurement, monitoring and enforcement (Section 5);

- international linkages (Section 6);

- tax and accounting issues (section 11);

- the impacts of contracts and regulation on cost pass-through (section 12.4); and

- managing cash flow implications.

Each of these is covered in turn below, with key issues for the upstream oil and gas industry and APPEA's position on each highlighted.

Treatment of emissions-intensive trade-exposed industries (Section 9 of the Green Paper) is considered separately in section 5 below.

4.3.1 Scope and coverage

The key questions here revolve around the extent to which the proposed scheme covers all greenhouse gases and emitting sectors, and whether it covers the major present and future emitters around the world.

APPEA advocates the scope and coverage of any emissions trading scheme be as broad as possible. This is an issue of particular concern to industries such as the upstream oil and gas industry.

APPEA notes the Green Paper's focus is on a domestic scheme and its scope and coverage is therefore limited. Section 2 of the Green Paper considers which greenhouse gases, emissions sources and sinks should be included in the scheme, when should they be included, which entities should be responsible for holding permits for them and the scope for offsets from emissions sources that are not included in the scheme.

With that limitation in mind, APPEA endorses the Government's preferred position that the scheme should have maximal practical coverage of greenhouse gas emissions and sectors.

In particular, APPEA endorses at a broad level:

- preferred position 2.1, on page 96, that all greenhouse gases included under the Kyoto Protocol – carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons – would be covered from scheme commencement;

- preferred position 2.2, on page 97, that in general, the emissions threshold for direct obligations under the scheme would apply to entities with facilities which have direct emissions of 25,000 tonnes of CO_2-e per year or more;

- preferred position 2.3, on page 98, that stationary energy emissions would be covered from scheme commencement by applying scheme obligations both to facilities with direct emissions of 25,000 tonnes of CO_2-e per year or more and to suppliers of fuel to small energy users (the way in which the scheme proposes to handle upstream acquittal

relating to natural gas supply is considered further in section 4.3.2 below);

- preferred position 2.5, on page 1.4, that fugitive emissions would be covered from scheme commencement by applying scheme obligations to facilities with direct emissions of 25,000 tonnes of CO_2-e per year or more;

- preferred position 2.9, on page 108 that carbon that is transferred to CCS facilities would be netted out of the originating entity's gross emissions. Scheme obligations for fugitive emissions – from transport of the carbon and from the CCS facility – would be imposed on the operator of the CCS facility.

APPEA also agrees with the general proposition that, for sectors that are not covered by the scheme, alternative abatement measures should be considered, particularly if the sector is likely to remain outside the scheme for some time. However, this is not to ensure that all sectors make a contribution towards the costs of achieving Australia's national emissions reductions but rather to ensure sectors outside the scheme face equivalent costs on carbon and so incentives to undertake abatement. Whether they do so will depend on the abatement opportunities within those sectors.

The section notes offsets are another mechanism that could provide incentives for firms in uncovered sectors to undertake additional abatement. APPEA supports the inclusion of as broad as possible a range of domestic offsets in the scheme (noting the structure of the scheme outlined in preferred position 2.22 on page 138 severely limits the range and nature of offsets available). The Green Paper notes that

> *By their very nature, however, offsets assist other sectors to meet their emissions obligations, rather than providing a means by which a sector contributes to national emissions reductions.*

APPEA notes this not a relevant consideration to the overall scheme objective, which is to meet an emissions reduction target most efficiently (at least cost). Such an objective does not imply equivalent emissions reductions across all sectors, or even that every sector will reduce emissions – an efficient outcome may see many sectors of the economy experience emissions growth in a manner that remains consistent with an overall emissions reduction target. The key issue is the breadth of coverage of domestic (and international) offsets that may be allowed under an Australian emissions trading scheme.

APPEA recommends this be as broad as possible, encompassing all possible domestic and international sources of offsets, subject to certain criteria, such as environmental effectiveness, being met.

APPEA sees no reason to limit the use of credible and verifiable offsets in an Australian emissions trading scheme.

4.3.2 Upstream gas acquittal

The Green Paper, in preferred position 2.14 on page 114, notes:

> *Scheme obligations for emissions from natural gas combustion would be applied to entities with facilities which have direct emissions of 25,000 tonnes of carbon dioxide equivalent a year or more, and to natural gas retailers and gas producers for emissions from gas supplied to small emitters.*

APPEA agrees with this approach, which arises from consultation between APPEA and officials from the Department of Climate Change in late 2007 and early 2008 and consultation with other interested stakeholders.

APPEA's proposed treatment of upstream gas acquittal that has been endorsed by the Green Paper is based on a number of overarching criteria and guiding principles:

- the overarching criteria require that any treatment be simple and robust, make maximum use of existing administrative and other systems and be low cost;

- the guiding principles imply direct acquittal responsibility, that is, wherever possible, the acquittal point for small users resides with the retail or distribution company, liability should be based on actual energy delivered and the existing custody transfer meter is the means for determining amount of energy supplied.

As noted above, the acquittal liability for small energy users would be met by the firm that supplied the energy, in this case the retail or distribution company. The retail or distribution company would effectively sell two products – gas inclusive of emissions costs to residential and small industry and gas exclusive of emissions costs for supply to industry with direct acquittal obligation. Where another part of the gas supply chain fell below the annual emission threshold then acquittal liability would pass to which ever party effectively provided the energy; detailed arrangements would need to be considered in light of contractual obligations, for example, who effectively provides energy for transmission pipeline operation.

APPEA welcomes preferred position 2.14 as consistent with the views expressed by APPEA during the consultation process leading up to the release of the Green Paper. APPEA would now welcome the opportunity to work further with the Department of Climate Change and other interested stakeholders to further refine the approach and develop the necessary administrative arrangements to give effect to the preferred position.

4.3.3 Permit allocation and equity: the role of auctioning

Although the tradable nature of a permit market allows the targeted emissions abatement to be achieved at least cost in the long-run, the initial allocation of permits will largely determine the welfare effects of the system. There are three broad options for allocating permits:

- to sell them at an auction (either to all comers or a specific set of bidders);
- to allocate through some form of administration; or
- some combination of the two.

Auctioning of permits results in a net transfer of income from emitters to the government and to others in the economy through any revenue recycling. The overall effect on society depends on the way in which the government chooses to disburse the permit revenue as well as on the direct production and consumption effects of the scheme.

Auctioning of permits should become a central permit allocation feature over time, but administrative allocation (particularly to emissions-intensive trade-exposed industries, such as LNG, while a global emissions trading scheme does not exist) of permits should also be a key feature of the permit allocation system.

The key role of auctioning in an emissions trading scheme is to deliver permits into the market and thereafter, with minimum government interference, to allow the market to reallocate those permits to those that place highest value on them from time-to-time. However, this role is not simply related to this year's or next year's permits, it is also related to future years. As is noted in the AIGN submission, permits dated up to 30 years into the future, and backed by strong property rights, need to be released into the market to promote the development of risk management tools for investment in long-lived assets, including investment in RD&D. If achieved, this has the practical economic efficiency outcome of reducing the risk premiums associated with such investments.

APPEA also offers the following comments on some of the preferred positions set out in this section of the Green Paper:

- APPEA supports preferred position 7.3, as set out on page 264, which would see four auctions held each financial year, one in each quarter; and
- APPEA supports preferred position 7.4, as set out on page 264, which would allow for at least one auction of the relevant year's vintage to be held after the end of the financial year in the lead-up to the relevant surrender date. APPEA notes the need for such an auction

would be mitigated by allowing more appropriate scheme borrowing arrangements, as will be considered further in section 4.3.4 below; and

- while APPEA does not have a preferred position on auction design, it recommends the proposed auction methodology be as simple for auction participants as possible. This may imply a single round sealed bid auction is preferable to the ascending clock auction proposed by the Green Paper in preferred position 7.9, as set out on page 273.

4.3.4 Strongly affected industries

APPEA notes the Green Paper, on page 341, proposes that

> *Where industries cannot fully pass on increases in production costs to consumers, entities in those industries may face a reduction in their profitability. While all segments of the community will share some of the burden of achieving emissions reductions, some industries may be particularly strongly affected. The Government has committed to addressing the impact of the scheme on strongly affected industries.*

While APPEA supports the proposal to address the impact of the scheme on strongly affected industries, it notes that, for a number of reasons, considered further below, the proposals contained in the Green Paper do not adequately fulfill this commitment.

APPEA notes the Green Paper's preferred position 10.1, as set out on page 345, is to restrict the mechanism available to strongly affected industries to those industries that are not trade-exposed, are emissions-intensive, include some entities that are emissions-intensive compared to their competitors, such that they cannot pass on carbon costs and could experience significant losses in asset value, have significant sunk capital costs, not have significant economically viable abatement opportunities available to them.

APPEA notes that the restriction of consideration to industries that are not trade-exposed is inappropriate. Depending on the nature of the changes that must be made to the treatment of emissions-intensive trade-exposed industries between the proposals in the Green Paper and the final policy position developed, it may still be the case that some trade-exposed industries do not qualify for emissions-intensive trade-exposed treatment. There is no reason industries excluded from emissions-intensive trade-exposed treatment should also be excluded from treatment as a strongly affected industry if they can meet the other criteria set out in preferred position 10.1.

APPEA therefore recommends the requirement to not be trade-exposed be deleted from the list of characteristics of strongly affected industries.

A broader issue raised by the analysis of strongly affected industries is its focus on profitability issues and the impact of margins of domestic competition and the competitiveness of particular industries.

This approach, which underpins the conclusion that coal-fired electricity generation assets are likely to be strongly affected by the emissions trading scheme, appears to have been rejected in the analysis of emissions-intensive trade-exposed issues and yet the conceptual underpinnings of both issues are very similar. It also highlights the arbitrary nature of the position in relation to emissions-intensive trade-exposed activities adopted in the Green Paper.

4.3.5 Permit caps / gateways

Notwithstanding claims that have been made by some, it is not possible to fully assess the impact of the Green Paper's preferred positions without the proposed emissions trajectories and gateways and a better understanding than is conveyed by the Green Paper of the projected emissions price path.

APPEA notes it is vital that the Government's proposals on medium-term national target range for 2020 and the indicative national emissions trajectory be provided to enable the options in the Green Paper to be assessed and impacts on industry evaluated prior to the finalisation of the White Paper.

In this context, APPEA notes the release on 5 September 2008 of the Supplementary Draft Report of the Garnaut Climate Change Review, *Targets and Trajectories*[37], which sets out the Review's proposals for emissions reduction trajectories and targets for Australia within an international context. The Report is informed by the economic modelling undertaken jointly with the Australian Treasury as well as the Review's own independent modelling. APPEA notes the report, in the post Kyoto period, sets out two cooperative global mitigation scenarios.

The two scenarios represent cooperative solutions in which the countries of the world agree to share the burden and to work towards stabilising greenhouse gases at a particular level:

- under the '550' scenario, the world stabilises the concentration of greenhouse gases in the atmosphere at 550 parts per million (ppm) CO2-e;
- under the more stringent '450' scenario, the concentration of greenhouse gases in the atmosphere initially overshoots but then returns to 450 ppm CO2-e.

Australia's target, should be to reduce emissions net of international trading by 10 per cent from 2000 levels by 2020 (30 per cent per capita),

[37] See www.garnautreport.org.au for further information.

and 80 per cent by 2050 (90 per cent per capita). APPEA's media release[38] in response to the Report noted these represent extremely challenging targets. The Garnaut-Treasury modelling also indicates that the cost to Australia of mitigation would be 1.1 per cent of GDP by 2020 under a 550 ppm scenario, and 1.6 per cent of GDP by 2020 under a 450 ppm scenario.

In relation to the scheme caps, APPEA supports the Green Paper's proposal to provide multi-year caps and to extend the multi-year cap every year. APPEA also acknowledges that in providing this information, the Government must, as the Green Paper notes on page 173, *"balance guidance it provides to the market (to help promote an economically efficient (low cost) response) against the policy flexibility it requires to adapt the scheme to evolving international target obligations"*.

An important component of this balance is industry's need for some level of certainty. This is a particular issue for proponents of new large scale energy projects, many of which have operating lives measured in decades. Extending the multi-year cap to at least fifteen years, rather than the five proposed in preferred position 4.3 on page 174, would strike a more appropriate balance.

APPEA also supports the proposed approach of providing gateways for a number of years in advance of the announced national emissions trajectories.

The approach adopted in the Green Paper, and set out in preferred position 4.5 on page 179 would only provide for scheme caps to be set and announced for a minimum period of five years in advance at any one time. This does not provide the requisite level of certainty necessary to underpin investment in major new energy projects.

APPEA recommends the combined emissions cap and forward gateway process provide indicated emissions trajectories that run for at least twenty and preferably thirty years.

APPEA supports preferred position 4.11, as set out of page 187 of the Green Paper that the scheme cap would not be adjusted in the event that it is incompatible with internationally negotiated national targets and, if necessary, the Government would make up any shortfall in internationally agreed targets by purchasing international emissions units.

As uncovered sectors are added to the scheme it is important that the transition does not introduce unintended volatility to the prevailing emissions trading price.

With that in mind, APPEA supports preferred position 4.12, as set out of page 188 of the Green Paper that the Government would announce an

[38] APPEA's media release, *Garnaut's climate change targets*, can be found at www.appea.com.au/content/pdfs_docs_xls/NewsMedia/APPEAMediaReleases/garnauts_climate_change_targets_-_8-9-08.pdf.

approach in early 2010 for expanding the cap to accommodate increases in scheme coverage that provided a smooth scheme price path.

In addition to the issues addressed in the Green Paper there is also the interaction between the scheme cap, any internationally agreed national emissions target and the ability to allow for the entry of new emissions-intensive trade-exposed activities to the Australian economy. This vital issue is considered in further detail in section 5.6.1.

Finally, as the AIGN submission notes, provided the Government issues all the permits into the future, the highest emission trajectory gateway adopted by government provides a floor price. AIGN (and APPEA) supports such an implied floor price as it mitigates downside investment risk in long-lived lower emission technologies.

4.3.6 Banking and borrowing

A potential design feature of an emissions trading scheme, and one which APPEA supports, is the 'banking' and 'borrowing' of permits.

When banking is allowed, permit holders are allowed to save permits for the future. In addition, depending on the conditions set in the scheme, parties may be able to borrow against future permits. Banking and borrowing may increase the flexibility of firms in the scheme about when they wish to use or sell a permit. The motivation for allowing banking is similar to that of allowing trading of permits – both aim to ensure that abatement occurs where and in what time period it comes at the least net cost to society[39]. Banking may also smooth the adjustment path in a way that minimises abatement costs. This can lead to an increase in economic efficiency of an emissions trading scheme.

While having the symmetry associated with both banking and borrowing available in a scheme is theoretically attractive, borrowing is less likely to find political favour than banking – this has been a feature of the debate around borrowing that has taken place so far in Australia and is a feature of the discussion in the Green Paper.

It is sometimes suggested that allowing permit borrowing could place unnecessary burdens on future generations. It has also been argued that if borrowing is unrestricted, that will grant an option to companies that are 'long' of allowances to either sell them or simply hold them at 'zero cost' into the future. If a significant number of companies do this, this may lead to less liquidity and a constraint on true price discovery in the market. However, a banking scheme within a defined timeframe may avoid this while still allowing liable parties the flexibility to manage their activities in response to variations over time in the costs of abatement.

[39] This assumes that the timing of the emission is irrelevant to its environmental harm, which is likely to be true for greenhouse gases over the relatively short periods that banking and borrowing would typically be proposed.

APPEA notes the Green Paper proposes a range of limitations on borrowing, with preferred position 3.5 on page 158 proposing

> *The scheme would permit a limited amount of short-term borrowing by allowing liable entities to discharge up to a certain percentage (less than 5 per cent) of their obligations by surrendering carbon pollution permits dated from the following year.*
>
> *The exact percentage should be subject to further investigation and should be considered in conjunction with decisions about the level of the initial scheme caps.*

APPEA notes this preferred position would result in a scheme that does not have borrowing in the sense traditionally considered, that is, as a mechanism to allow temporal flexibility in emissions reductions and permit acquittal, but rather as a form of "balancing mechanism" to allow minor discrepancies between reported emissions and permits held to be managed year-to-year. In addition, the proposed 5 per cent limit appears to be arbitrary in nature and not the result of any considered analysis. The Green Paper also provides no compelling case for limiting borrowing to short-term borrowing only.

While APPEA notes that there are some arguments for limits to be placed on borrowing (considered above), it recommends any limits applied under the scheme still provide for an efficient level of borrowing to occur. APPEA also recommends long-term borrowing be allowed under the scheme.

4.3.7 The price cap

A design feature that may avoid unintended permit price trajectories is a price cap trajectory with attendant implications for emissions. As the Green Paper notes, a price cap may be a barrier to linking with other countries that did not have the same price cap. The inclusion of any price cap in the first years of the scheme may also limit the range and availability of secondary market products[40].

A price cap trajectory could be abolished when the community had confidence in the maturity and stability of the domestic and international emissions markets. This reinforces the importance of other flexibility mechanisms, such as access to international markets, in managing price instability. Such mechanisms lessen the need for a firm price cap to be established.

However, the arguments for some form of price cap in the early years of the scheme to, as the Green Paper notes, reduce upside price risk, thereby capping the cost of the scheme for liable entities, make explicit

[40] Port Jackson Partners Limited (2008), *Bringing specific company economic perspectives to bear on the ETS design*, report to the Business Council of Australia, 21 August (available at bca.com.au/DisplayFile.aspx?FileID=468).

the Government's policy response in the event of extreme pricing outcomes in the market, and help promote a smoother transition for those covered by the scheme, are compelling and outweigh, in the early years of the scheme, the disadvantages of such a cap.

With in mind APPEA endorses preferred position 3.7, as set out on page 164 of the Green Paper, that the scheme have a price cap for the period 2010-11 to 2014-15. APPEA also agrees that the precise level be set taking into account all information about scheme design and the expected abatement costs in the economy, that the price cap be reviewed at the first review point, taking into consideration banking and borrowing arrangements, limits on the surrender of international units for compliance, the maturity of the market and future international linking commitments.

APPEA further recommends that the price cap be in the form of a 'fee', not an administrative penalty.

4.3.8 Measurement, monitoring and enforcement

Emissions trading systems, depending on their design parameters, may impose burdens in terms of institutional requirements for measuring and monitoring emissions reductions, for determining appropriate initial allocation, administering the permit market and enforcement.

APPEA recommends effective and verifiable measurement, monitoring and enforcement procedures as key features of the emissions trading scheme. Without effective and verifiable measurement, monitoring and enforcement procedures in place, the permit market will not provide the correct price signal and environmental outcomes cannot be guaranteed. Probably the greatest challenge to an international emissions trading scheme is the provision of effective monitoring and enforcement.

APPEA has been and will continue to be heavily engaged in consultations with the Department of Climate Change in establishing the detailed arrangements underpinning the operation of the National Greenhouse and Energy Reporting Scheme (NGERS).

With that in mind, APPEA endorses preferred position 5.1 on page 194, which proposes NGERS would be the starting framework for monitoring, reporting and assurance under the scheme, and elements of that system would be strengthened to support the scheme. APPEA recommends, given the administrative and other compliance costs that have already been incurred in preparing for NGERS, and the commitment that NGERS form a single and streamlined greenhouse reporting system, such differences be kept to an absolute minimum.

APPEA also endorses preferred position 5.3 on page 198 that emissions estimation methodologies under the scheme would be those available under NGERS.

APPEA also notes preferred position 5.5 on page 204 which proposes further consultation and analysis would be undertaken to establish appropriate reporting requirements and emissions estimation methodologies relating to the obligations of upstream fuel suppliers under the scheme. APPEA would welcome the opportunity to be involved in such consultation.

APPEA also endorses preferred position 5.9, as set out on page 207, that a single report would be sufficient to satisfy an entity's obligations under both NGERS and the emissions trading scheme, with reports to be submitted by 31 October each year.

APPEA recommends, as has been previously agreed through the NGERS consultation process, the scheme should not provide for the publication of reported information to the facility level.

Facility level disclosure is unnecessary to the administration of scheme, may provide misleading information (given greenhouse gas emissions have global and not local impacts and so the level of greenhouse gas emissions coming from an individual facility is not related to any local impacts) and risks inappropriately disclosing commercial information. While facility level reporting to the regulator under the scheme is appropriate, the publication of any reported information should be at a company level only. APPEA is disappointed the Green Paper seeks to reopen this previously settled position, which was the result of numerous rounds of consultation and government consideration.

In addition, APPEA notes that as reporting under the scheme commences, a number of administrative and other matters will require correction and / or amendments, either to the Act or supporting regulations.

APPEA recommends that the Department of Climate Change continue an active consultation program with industry to ensure the NGERS continues to achieve its reporting aims in a manner that minimises compliance costs for reporters.

In relation to assurance issues, APPEA agrees with the statement on page 208 of the Green Paper that:

> *... it will be important for the Australian scheme's assurance regime to achieve economic efficiency via a stable and credible carbon market while not having to impose excessive compliance burdens on liable entities.*

With in mind, the Green Paper's preferred position 5.10, as set out on page 210, which would require large emitters (that is, those with obligations of 125,000 tonnes of CO_2-e or more) be required to have their annual emissions reports assured by an independent accredited third party prior before submitting the reports to the Government, does not

appropriately strike this balance. Such a position would significantly increase compliance costs for participants in the scheme.

APPEA recommends that the compliance and assurance regime for the scheme be modeled on the Australian taxation system, that is, self-assessment by entities, supported by a retrospective assurance regime managed by the Government.

In addition, APPEA recommends preferred position 5.11 on page 211 be extended to allow environmental, engineering and similar practitioners to sign-off on external audit reports; specifically, APPEA recommends environmental auditors who qualify under *AS ISO 14064:2006 Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*[41] and *ISO 14065:2007 Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition* be included in the list of people who can 'sign-off' on the external audit. The proposed external auditing arrangements appear to limit accredited persons to financial auditors and risk under-valuing the contribution that environmental, engineering and similar practitioners can make to greenhouse and energy reporting, will increase compliance costs for liable parties by artificially reducing the supply of auditors, and are not in line with international practice in this area.

4.3.9 International linkages

As was noted in Section 4.1 above, it is unlikely that a comprehensive international agreement to support a global emissions trading scheme will emerge in the near future. However, the European Union will continue its emissions trading scheme beyond 2012 and a number of individual countries, and potentially groups of countries, are in the process of, or propose to, implement emissions trading schemes. The result of this would be what has been referred to as a 'constellation' or 'patchwork' of different national and regional schemes.

This means that possible linkages between the Australian emissions trading scheme and other emissions trading scheme is an important scheme design consideration. As a general principle, APPEA supports the inclusion of an ability for an Australian emissions trading scheme to link with other emissions trading schemes.

As such, APPEA endorses the Green Paper's general position that the emissions trading scheme be designed so that it can be linked with other international schemes and that in seeking to link to other schemes, the linking arrangements suit Australian economic conditions (especially in managing any risk of 'importing' a higher price of carbon from international schemes).

[41] See www.iso.org/iso/home.htm for further information.

In particular, APPEA supports that a rigorous cost-benefit assessment occur before any international linkages are contemplated and note the concerns that have been expressed in the AIGN submission that linking, whether intentional or not, will occur and that Australia will import price path and (possibly) volatility from larger markets (for example, the EU or the USA) whether it represents the best outcome for Australia or not.

Any restrictions placed on linkages should, however, allow for maximum flexibility in linking arrangements, consistent with Australia's international obligations, primarily those imposed on Australia following our ratification of the Kyoto Protocol. In particular, APPEA does not support restrictions being placed on the use of Certified Emission Reduction units or other credible scheme permits (for example, from a USA scheme) in the Australian scheme.

4.3.10 Tax and accounting issues

Operations within the upstream oil and gas industry are generally undertaken within unincorporated joint ventures (UJVs). These structures, which are typical world-wide, provide entities with the opportunity to spread risk across a portfolio of activities, allow funding to be derived from a range of sources and allow expertise to be drawn from the different parties within a single project. The relationship between the parties, including the joint venture operator is governed contractually by a joint operating agreement. While an 'operator' is normally nominated to undertake and be responsible for the day-to-day running of a project, all parties are usually jointly and severally liable for any obligations associated with a project.

Depending on the nature and the parties involved in individual joint ventures, it is expected that some projects will operate in a manner whereby a project operator will act to address greenhouse obligations (that is, permit purchase and acquit those permits on behalf of joint venture participants jointly and severally), whereas in other instances, individual joint venture participants will meet their share of any obligations independently. This will vary on a case-by-case basis.

Fiscal issues that will need to be considered in detail from the perspective of companies engaged in oil and gas exploration, development and production operations include the following:

- company tax;
- goods and services tax;
- petroleum resource rent tax; and
- petroleum royalties (Federal, State and Territory).

APPEA is broadly supportive of a number of proposed treatments outlined in the Green Paper, and notes that formal discussions are currently underway between Treasury, the Australian Taxation Office, professional bodies and industry representatives to further explore the nature and possible treatment of company tax and goods and services tax (GST) consequences arising from greenhouse activities. APPEA is supportive of this ongoing process and considers it the most appropriate mechanism to address the issues arising under these taxes.

APPEA notes that a separate process (involving representation from Treasury, the Department of Resources, Energy and Tourism and APPEA) is currently underway to both assess and address the issues arising for taxpayers under the operation of the petroleum resource rent tax (PRRT) regime. The PRRT issues are potentially more complex than other taxes due to a range of factors, including:

- while PRRT is a 'project' tax, a liability to pay is incurred on a participant (not project) basis;
- PRRT is a tax largely based on economic, not accounting (as is the case for company tax), principles;
- integrated projects where only part of the project is subject to PRRT; and
- depending on the nature of project participants, significantly different PRRT tax positions exist for individual participants in a single project. This is further complicated by the transferability provisions that exist under the regime.

From a fiscal perspective, it is essential that many of the taxation obligations and consequences flow directly back to individual participants within UJVs. In some instances, this may be capable of being addressed through the adoption contractual arrangements within joint ventures. It will be critical that the emissions trading scheme arrangements do not prevent the attribution of project based scheme acquittal obligations and liabilities jointly and severally to individual joint venture participants.

APPEA recommends that a formal working group be developed with representation from APPEA, the Minerals Council of Australia and officials to discuss the nature/operation of unincorporated joint ventures and the interaction of these structures with key fiscal parameters.

Participants with projects/activities being undertaken within unincorporated joint ventures be provided with flexibility in meeting their greenhouse obligations to ensure that any final measures are complementary to the legal and commercial framework within which these structures operate.

4.3.11 The impacts of contracts and regulation on cost pass-through

One practical consideration in implementing an emissions trading scheme will be the impacts of contracts and their relationships to the reasonable attributing of costs to the appropriate parties.

There are a number of contracts supporting the commercial structure of domestic gas supply in Australia. These private arrangements, that in many cases date back a number of years, may or may not allow for the pass through of an emissions trading scheme-related liability. In this context, APPEA notes the Green Paper, on page 431, asserted *"... it is not obvious that there is a widespread policy problem that the Government should attempt to solve"* but sought views on the impacts of the scheme on commercial contractual arrangements.

The issue of costs associated with an emissions trading scheme is a significant issue given that the gas supply industry utilises long-term contracts where pass through of costs associated with an emissions trading scheme were not foreseen at the time of the contractual agreements, and hence such costs are not covered in current contracts.

APPEA recommends the scheme legislation specifically address this issue, as was done in respect of the GST when it was introduced in 2000[42].

4.3.12 Managing cash flow implications

It will be important to ensure that the emissions trading scheme does not impact inappropriately on the cash flow of a liable entity, particularly in situations where an entity does not have any revenue or may be otherwise unable to manage the cash flow implications through the use of financial products. While there will be many instances in the upstream oil and gas industry (and indeed in other industries) where this will be the case), an example is the possible impact on CSG-related development and power generation projects.

Greenhouse gas emissions from CSG-based power generation projects are primarily the result of cleaning up and commissioning the wells, processing and compressing the gas and then burning the gas as fuel in the power plant.

With conventional natural gas development, the emission of carbon dioxide begins when the wells are brought on line and the power plant begins burning gas to generate power. Once such a power plant is operating, the business begins to generate income and this revenue would be used in part to acquire emissions permits for carbon dioxide

[42] When the GST was introduced, there were numerous pre-existing contracts where the supply was to be made after 1 July 2000. The prices in these contracts were likely to have been determined without regard for the GST. Consequently, section 13 of the *A New Tax System (Goods and Services Tax Transition) Act 1999* allowed supplies under pre-existing contracts to remain GST-free until their first review opportunity. See www.treasury.gov.au/contentitem.asp?NavId=037&ContentID=753 for further information.

associated with the gas production and subsequent combustion in the power plant.

CSG projects typically include a long period of well clean-up and commissioning that involves the de-watering of the coal seams. Gas produced to surface during this initial cleanup process is flared in the field. Clean-up may take many months to complete while there is a gradually increasing production of gas and a decreasing production of water from each well. Once the combined gas flow from the wells has built up to a sufficient level the power plant can be commissioned, the flaring stops and revenue generation commences.

The consequence of the lengthy delay between initial well commissioning and revenue generation is that although under the emissions trading there may be a need to acquire emissions permits for flaring, this occurs at a time when there is no project revenue to fund their purchase. The scheme as set out in the Green Paper may require a CSG producer to invest scarce capital funds in the purchase of emissions permits prior to project start up. This would place CSG projects at a relative disadvantage to coal projects and conventional gas projects.

APPEA recommends the scheme legislation include a mechanism that allows CSG projects to overcome the financial hurdle of initial well commissioning and clean-up. A potential way to achieve this would be to allow deferral of payment for permits required for flaring until such time as project revenue commences.

5. THE TREATMENT OF EMISSIONS-INTENSIVE TRADE-EXPOSED INDUSTRIES: THE CASE FOR LIQUEFIED NATURAL GAS

5.1 Background

As has been considered and accepted by every major credible analysis of an emissions trading scheme undertaken in Australia and internationally, if policies and measures such as emissions trading schemes are implemented in some countries and not in others, distortions will occur as a result of the escalation in production costs in the countries that have implemented greenhouse policies relative to those that have not. Distortions will occur to consumption, production and investment decisions, and overall emissions could increase if carbon leakage is significant in cases where few countries have implemented binding policies.

APPEA has long recommended measure(s) to deal with this international policy distortion must be a central feature of any emissions trading scheme introduced in Australia.

In doing so, it is vitally important to recall why the emissions-intensive trade-exposed issue arises at all – that is, the failure of Governments to reach a global agreement on carbon pricing and the consequent

implications for industry competitiveness that arise from unilateral actions by any one Government.

With that in mind, the industry's key objective in considering this issue is to ensure that the Australian LNG industry does not bear an additional cost impact for as long as our competitors and customers are not subject to a similar impost.

There are a variety of ways to manage this transitional issue (transitional in the sense that a global emissions trading scheme would remove such trade competitiveness impacts) under an emission trading scheme, although there is no ideal approach that avoids all costs. APPEA notes no emissions trading scheme proposed or introduced to date has dealt comprehensively and effectively with this issue.

Emissions-intensive trade-exposed firms also face administrative burdens in any process to determine their emissions-intensive trade-exposed status and their access to any mechanism to ameliorate these impacts. This will of itself impose adverse impacts on emissions-intensive trade-exposed firms compared to their international competitors who do not face these requirements. The Government should consider ways to address this overall impact on Australia's competitiveness as an investment location, one that exists over and above the direct impact on firms arising from the emissions-intensive trade-exposed issue.

In addition, there may be obstacles to the implementation of arrangements to manage trade competitiveness impacts, including a question over whether they are legal in some circumstances. For instance, there is no direct exemption under the World Trade Organisation (WTO) rules for Kyoto Protocol measures. Whether a particular measure is WTO-compatible would depend on which agreement it fell under and then whether it could be brought within exceptions for environmental measures under those agreements.

The importance of this issue cannot be underestimated: a domestic emissions trading scheme would be highly prejudicial to Australia's economic performance without a provision to preserve industry's international competitiveness.

5.2 The Green Paper's preferred positions on emissions-intensive trade-exposed issues: general comments

The Green Paper discusses the policy rationale for emissions-intensive trade-exposed activity treatment and a range of practical issues including how, to whom and on what basis the treatment could be provided, both initially and into the future. The stated rationale for emissions-intensive trade-exposed treatment is set out as preferred position 9.1 on page 297 of the Green Paper, to:

- address some of the competitiveness impacts of the scheme on emissions-intensive trade-exposed industries in order to reduce carbon leakage;

- provide transitional support to emissions-intensive trade-exposed industries that will be most strongly affected by the introduction of a carbon constraint; and

- support production and investment decisions that would be consistent with a global carbon constraint.

APPEA notes this represents – particularly in relation to the first two rationales – a fundamental and inappropriate departure from Government's pre-election commitments, to:

- ensure that Australia's international competitiveness is not compromised by Australia's response to climate change;

- ensure that Australian operations of emission-intensive trade-exposed firms are not disadvantaged by emissions trading; and

- consult with industry about the potential impact of emissions trading on their operations to ensure they are not disadvantaged.

APPEA further notes that in other areas of greenhouse policy, such the Government's pre-election commitment to ratify the Kyoto Protocol, commit to a reduction in Australia's greenhouse gas emissions of 60 per cent by 2050 and a significantly expand the mandatory Renewable Energy Target, the Government has not sought to depart from or otherwise amend these commitments.

APPEA can see no reason for, and is not aware of any Government public statement that announces, a change to the Government's pre-election commitments to emissions-intensive trade-exposed industries and recommends the preferred position 9.1 be amended to accurately reflect the Government's commitments in this area.

5.2.1 Identifying recipients

The Green Paper, on pages 303-314, attempts to set out a rationale for how entities that receive emissions-intensive trade-exposed "assistance"[43] would be identified, including whether the identification of entities should be based on an assessment at an industry, company, facility or activity level, the appropriate metric for identifying emissions-intensive activities,

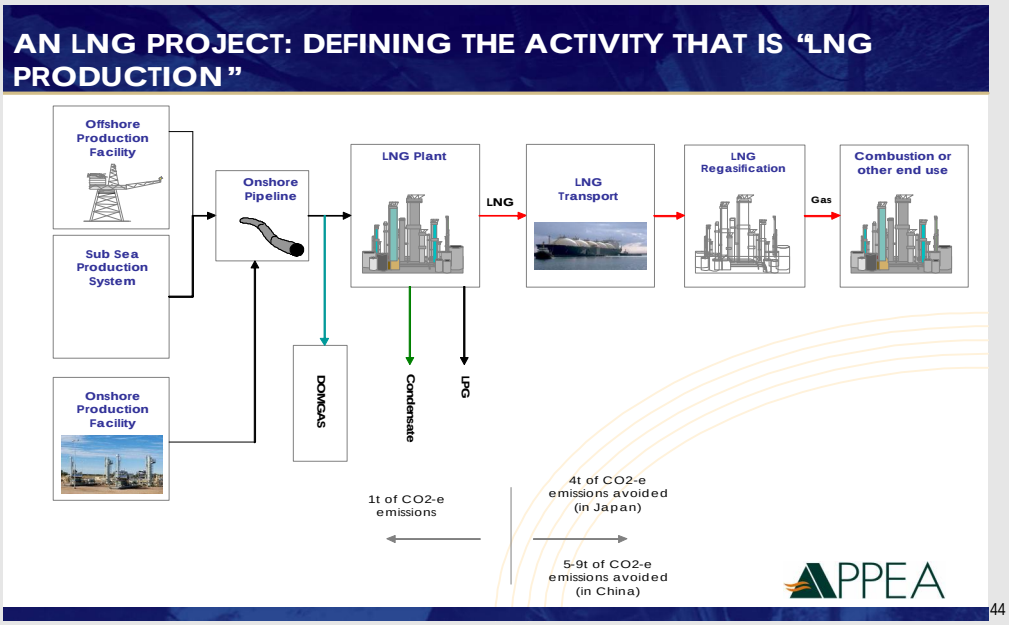
[43] APPEA notes the terms "assistance" is used throughout this section of the Green Paper. Such a term is inappropriate in this context. The emissions-intensive trade-exposed treatment is to address a market failure arising from the incomplete coverage of the scheme (that itself arises from the failure of governments to negotiate a comprehensive global agreement). It is not industry "assistance" in the manner of, for example, the proposed to be significantly expanded mandatory Renewable Energy Target. As a consequence, APPEA has generally used the more accurate terms "mechanism", "treatment" or "arrangement" in this submission.

the assessment of trade exposure and the process for determining eligibility for emissions-intensive trade-exposed "assistance". This section provides APPEA's views on these issues.

The following Box sets out a diagram describing the "activity" that produces LNG.

Box 2: An LNG Project: Defining the Activity that is "LNG Production"

To make LNG available for use, companies must invest in operations that are highly linked and dependent upon one another. The major stages of the LNG value chain consist of the following:



- exploration to find natural gas in the earth's crust;
- production of the gas for delivery to gas users;
- liquefaction to convert natural gas into a liquid state so that it can be transported in special purpose vessels;
- shipping the LNG in special purpose vessels;
- storage and regasification, to convert the LNG stored in specially made storage tanks, from the liquefied phase to the gaseous phase, ready to be moved to the final destination through the natural gas pipeline system; and
- combustion or other final end use.

[44] The tonnes of emissions in the LNG activity versus the tonnes of emissions saved in combustion or other end use comes from the CSIRO and WorleyParsons studies discussed in Section 3.2.2.

In summary, the proposal for identifying emissions-intensive trade-exposed activities is inadequate and requires revision. In particular, and as will be considered further below, the use of a measure of 'revenue' as a way to identify and compare emissions-intensive trade-exposed activities is flawed. The Green Paper's failure to adequately assess the trade exposure of emissions-intensive trade-exposed industries should also be revisited.

In terms of identifying recipients, the Government's preferred position 9.3, as set out on page 304, is to provide "assistance" *"on the basis of the industry-wide emissions from a process or activity to ensure that assistance is well targeted and is equitable both within and between industries".*

This would involve assessing the different production processes or activities across the economy against the emissions-intensive trade-exposed eligibility criteria with allocations based on the use of industry-wide allocation methodologies. Eligibility for emissions-intensive trade-exposed treatment would be based on the performance of all entities in Australia conducting a given activity.

5.2.2 Assessing emissions intensity

In terms of assessing emissions intensity, the Government's preferred measure, set out as preferred position 9.4 on page 309, of emissions intensity of activities includes direct emissions and indirect emissions arising from electricity production from emissions sources covered by the scheme. The view is that the mechanism for emissions-intensive trade-exposed entities take into account only those emissions.

5.2.3 The 'revenue' metric

The Green Paper contends that, to enable comparisons of different activities, emissions intensity needs to be measured in terms of a common unit of size or value. The Government's preferred position 9.4, as set out on page 309, is that a measure of emissions per unit of revenue provides *"the most transparent and comparable indicator of the materiality of the carbon cost impact across different traded industries".*

As was noted above, the use of a measure of revenue as a way to identify and compare emissions-intensive trade-exposed activities is fundamentally flawed. The Green Paper's analysis and use of the revenue metric appears to be based on the availability of data, ease of calculation, and restricting eligibility rather than any connection to the fundamental issue to be addressed – maintaining the international competitiveness of Australia's emissions-intensive trade-exposed industries.

In particular, the approach appears to overemphasise the relative importance of 'transparency' and 'comparability' and downplays the relative importance of a metric as a measure of the 'materiality' of the carbon cost impact across different industries.

From an industry perspective, the three main factors that determine the potential exposure to an emissions trading scheme are:

- emissions intensity;
- ability to pass cost increases through to prices; and
- opportunity to abate carbon.

The Green Paper favours a very simple metric (emissions per unit of revenue) that takes limited account of any of the different dimensions and dynamics of the emissions-intensive trade-exposed issue. Revenue is thus an inadequate basis on which to assess the competitive impact of an emissions trading scheme on different sectors of the economy. From an LNG perspective, the use of the revenue metric fails to recognise the range of factors that influence investment decisions in the Australian LNG industry. The use of revenue to determine eligibility does not reflect factors such as:

- the very large capital costs[45] involved (up to $20 billion for a two, 5 million tonne, train project with offshore infrastructure);
- the very long periods between the discovery of a gas resource before profits are generated (typically 7-10 years);
- the long-lived nature of the projects once they become operational; and
- the high upfront exploration and development risk associated with LNG projects.

Consequently revenue is required to underwrite highly capital intensive projects with long payback periods. Revenue is only one side of the equation and does not equate to profits. The measure proposed can only further discourage investment in Australian LNG projects.

For LNG companies, revenue is not a reflection of project profitability; project profits do not occur for many years after the investments are made. Nor is revenue an appropriate proxy for investment decision-making. In particular, the emergence of a discussion around a perceived 'capacity to pay' is unhelpful. It conveys an unfounded confidence that companies with multiple investment choices will invest in new Australian LNG projects. Company profits will not be reinvested in uneconomic projects and projects will naturally only proceed if they are commercially viable.

[45] The Green Paper itself, on page 309, notes that: "The main disadvantage of the use of revenue as the common measure is that this would result in lower measured emissions intensities for activities that have more significant input costs (such as those further down the supply chain) and for industries that require a higher return on their capital".

Possible ways to more appropriately identify, assess and compare emissions-intensive trade-exposed activities include:

- an alternative single metric that is similarly transparent and comparable but is a more appropriate measure of materiality – the key metric to emerge from an assessment of available alternatives[46] is "total operating costs" (intermediate inputs[47] plus employee costs)

  - total operating costs is a measure of the metric that is most directly impacted by the imposition of a carbon cost and provides a strong conceptual underpinning for an assessment of the materiality of a carbon cost impact;

- an alternative metric known as 'value at stake' – defined as the potential impact of an emissions trading scheme on input costs relative to the sector's value added, before any mitigation or pass-through of costs onto product prices

  - value at stake measures how much of the value added created in a sector would be lost if it could not pass-through the cost of carbon[48];

- a more subjective assessment that takes into account a range of metrics (such as total operating cost) and other considerations (such as the degree of trade exposure, the extent to which the industries growth is consistent with an outcome that would be achieved in the presence of a global carbon constraint and the ability of the industry in question to make a material difference to global greenhouse gas emission outcomes (the 'clean global contributor' (CGC) concept discussed in section 5.6.2 below) that can be used to determine activities most at risk of being impacted by the implementation of the emissions trading scheme ahead of our trading competitors.

[46] Including revenue and value added.

[47] Intermediate inputs: consist of the value of goods and services consumed in the production process, other than depreciation of fixed assets. It includes the value of goods transformed in the production process, goods and services consumed entirely in the process including contracted services, and consumption of ancillary services within the institutional unit undertaking the production. For a company, intermediate inputs would be equivalent to operating expenses (which exclude taxes, interest, depreciation and amortisation) less compensation for employees of the company.

[48] This indicator (often defined as the range of minimum and maximum value at stake) has received considerable attention in studies examining policies to address long-term competitiveness issues associated with the European Union emissions trading scheme (for example, The Carbon Trust (2004) (available at www.carbontrust.co.uk/publications/publicationdetail.htm?productid=CT-2004-04, Grubb and Neuhoff (2006) (available at www.electricitypolicy.org.uk/TSEC/2/grubb.pdf), Sato et al. (2007) (available at www.electricitypolicy.org.uk/TSEC/2/prog1.html)). It is also the concept on which the governments of France and Germany appear to be relying in internal EU deliberations on future sectoral compensation mechanisms to address carbon leakage and competitiveness concerns (Republic of France (2008) (available at ec.europa.eu/environment/climat/emission/pdf/080411/fr_bam.pdf, Germany (2008) (available at ec.europa.eu/environment/climat/emission/pdf/080411/de_carbon_leakage.pdf)).

5.2.4 Assessing trade exposure

The Green Paper canvasses several options for assessing the trade exposure of an industry or activity and concludes that on balance it is not possible to provide a practical, transparent and robust test of the relative capacities of different industries to pass through cost increases.

While noting that a few emissions-intensive industries produce goods specifically for the domestic market and for which there are physical barriers to trade (for example, electricity supply, natural gas and gas supply, and domestic transportation), it is argued that most other emissions-intensive industries *"either engage in a significant amount of trade or produce goods that are highly traded globally"*.

Hence the Green Paper's preferred position is that all industries, other than those for which there exists a physical barrier to trade, be considered for emissions-intensive trade-exposed treatment. This reflects the judgement that all tradable industries are *"somewhat limited in their ability to pass through cost increases, at least over the medium-term"*.

APPEA recommends a genuine assessment of trade exposure be undertaken to identify emissions-intensive trade-exposed industries that are "highly trade exposed". Relevant factors include:

- current and potential level of international competition and whether this competition faces a similar carbon cost;
- whether industry a price taker;
- current and potential barriers to entry; and
- current market share.

5.2.5 The level of "assistance"

As APPEA understands it, in terms of the initial size and distribution of "assistance", the Government's preferred position 9.6, as set out on page 321 of the Green Paper, is that up to around 30 per cent of permits would be "freely" allocated to emissions-intensive trade-exposed activities (if agriculture is included). From the outset of the scheme, the Government proposes to take into account the likely allocation that would need to be provided to parts of the agricultural sector (that are initially excluded from scheme coverage) so that, in practice, up to around 20 per cent of permits would be available to 'covered' emissions-intensive trade-exposed activities from the beginning of the scheme.

APPEA notes that no underlying rationale is provided for setting a limit on permits to emissions-intensive trade-exposed activities (effectively a cap within a cap) or is the level proposed the result of any considered analysis.

In addition, the proposal to maintain the limit of 30 per cent over time effectively increases the cost penalty facing emissions-intensive trade-exposed at an unpredictable and uncertain rate over time.

APPEA recommends the amount of permits to be allocated to emissions-intensive trade-exposed industries be that amount required to meet the Government's pre-election commitment and not be subject to an arbitrary limit.

It is proposed, in preferred position 9.6 on page 321 of the Green Paper, that eligibility would be based on industry-wide emission intensity of an activity or process being above a threshold of about 1,500 tonnes CO_2-e per million dollars of revenue. The initial treatment would cover around 90 per cent of emissions for emissions-intensive trade-exposed activities that have emissions intensities above 2,000 tonnes CO_2-e per million dollars of revenue and around 60 per cent of emissions for emissions-intensive trade-exposed activities that have emissions intensities between about 1,500 and 2,000 tonnes CO_2-e per million dollars of revenue.

As noted above, the proposed revenue metric is fundamentally flawed. Above and beyond that, the proposal to provide a two tier partial allocation of permits runs counter to every previous consideration of emissions trading in Australia. No underlying rationale is provided for the two tiers proposed or why two tiers are even required nor are the levels proposed –90 per cent or 60 per cent –the result of any considered analysis.

APPEA recommends that the emissions-intensive trade-exposed treatment for eligible activities be amended to meet the Government's pre-election commitment –if this is through permit allocation, then that permit allocation should be set at 100 per cent.

5.2.6 Adjustment over time

Further issues considered in the Green Paper relate to the adjustment of the emissions-intensive trade-exposed treatment over time and the basis and criteria for the complete phasing out of emissions-intensive trade-exposed treatment. The Green Paper, in preferred position 9.8 on page 333, proposes that the rate involved in the mechanism provided to the emissions-intensive trade-exposed industries should fall over time with the intent that the share provided not increase significantly over time.

Again, APPEA notes that no underlying rationale is provided for arbitrarily increasing costs for emissions-intensive trade-exposed industries over time. APPEA recommends that the emissions-intensive trade-exposed treatment for eligible activities be amended to be fully maintained whilst ever emissions-intensive trade-exposed industries face competition from competitors and customers who do not face comparable carbon costs.

5.2.7 Phasing out

The Government proposes a two-stage process for the phasing out of emissions-intensive trade-exposed treatment. Between 2010 and 2020, the mechanism would be maintained unless broadly comparable carbon constraints are introduced in key competitor economies, in which case it would be withdrawn. Beyond 2020, the mechanism would be withdrawn if broadly comparable carbon constraints are introduced in key competitor economies, or phased out over a five-year period in the event of 'acceptable' international action, or continued in the absence of either scenario.

Again, APPEA recommends that the emissions-intensive trade-exposed treatment for eligible activities be amended to ensure they are fully maintained whilst ever emissions-intensive trade-exposed industries face competition from competitors who do not face comparable carbon costs.

5.2.8 Burden sharing/shifting

A theme running much of the Green Paper's consideration of emissions-intensive trade-exposed issues is a view that "exempting" industries effectively shifts the responsibility for achieving the national emissions reduction target, and the risks, onto non-exempted industries and the Government. The Green Paper also asserts that the net effect would be to increase the economic cost of meeting a given emissions reduction target.

As is noted in the AIGN submission (a position APPEA strongly supports) these assertions are not correct:

- emissions-intensive trade-exposed industries are, by definition, those industries that are not able to pass the increased costs associated with the emissions trading scheme to their customers. This means that households will not suffer increased costs for these products and, therefore, every permit not allocated to emissions-intensive trade-exposed industries, but rather auctioned and the revenue used to compensate other sectors of the economy, is in fact "burden shifting" toward emissions-intensive trade-exposed industries;

- correctly designed, the emissions-intensive trade-exposed treatment does not inhibit pursuit by emissions-intensive trade-exposed industries of low cost emission abatement opportunities and therefore no extra abatement needs to be taken by other sectors of the economy, including households;

- the emissions-intensive trade-exposed allocation proposed in the Green Paper deliberately seeks increased, economically inefficient abatement from the emissions-intensive trade-exposed industries by constraining production and by deterring new investment in these

industries. The result will be that households generally will be worse-off because of a decline in wealth in the economy, and shareholders and workers in these industries will be carrying an extra burden; and

- the allocation of permits to emissions-intensive trade-exposed industries will not change the price of permits in the economy.

5.3 The case for emissions-intensive trade-exposed industries that make a significant contribution to greenhouse gas emissions reduction: LNG

As was outlined in section 3.2.2 above, Australia's LNG industry is in a unique position not only to contribute substantially to the economic development of the nation but also to help minimise the growth of greenhouse gas emissions in the Asia-Pacific region. The vast reserves of natural gas located in close proximity to growing Asian markets make Australia well-placed to positively assist in meeting the global climate change challenge while substantially contributing to Australia's economic growth.

It would be unfortunate if, by unnecessarily constraining Australia's LNG industry, the design of Australia's emissions trading scheme were inadvertently to undermine the scheme's ultimate objective of helping the world to reduce emissions.

Costs associated with a carbon price that are above those borne by our competitors, combined with the ability of our customer nations to substitute coal for natural gas, have the potential to cause the industry to fall short of its potential. Denying the Asia-Pacific region additional supplies of cleaner burning fuel may not only lead to "carbon leakage" – the dominant consideration underpinning the Green Paper's treatment of emissions-intensive trade-exposed industries – it would also represent a lost opportunity for Australia to play its optimal role in addressing the global greenhouse gas emission reduction challenge.

One of the key distinguishing features that sets LNG apart from many of the other emissions-intensive trade-exposed industries considered in the Green Paper is that the LNG industry fits very clearly within the third of the policy rationales set out in preferred position 9.1, *"to support production and investment decisions that would be consistent with a global carbon constraint"*.

This has been reinforced more recently, by Professor Ross Garnaut, in his Supplementary Draft Report, *Targets and Trajectories*[49], which noted on page 4 in relation to emissions-intensive trade-exposed industry issues:

> *It would be a significant failure of public policy if such assistance arrangements simply sought to compensate businesses for the*

[49] See www.garnautreport.org.au/#Supplementary%20Draft%20Report for further information.

> *effect of an Australian emissions trading scheme rather than the failure of our trading competitors to implement comparable policies.*

Professor Garnaut also went on to note, on page 42:

> *The Draft Report released in July 2008 advocated a three-pronged approach to solving what I have called the 'dreadful problem' that policy makers in every country face. All options must be pursued simultaneously. Two of the options rely on international agreements, namely:*
>
> - *a comprehensive global agreement on mitigation under which all major emitters have national emissions limits; or*
>
> - *effective sectoral climate change agreements for trade-exposed, emissions-intensive industries placing particular industries on a more or less level playing-field, through the application of broadly comparable carbon pricing on a sectoral basis. These agreements are discussed in Chapter 13 of the Draft Report.*
>
> *The third is a domestic arrangement that will need to be deployed if the first two options cannot be achieved in time for the first application of the emissions trading scheme, and involves:*
>
> - *domestic assistance measures for our most exposed industries that* ***address the failure of our global competitors to act on limiting their carbon emissions***. [Emphasis added][50]

The LNG industry, by virtue of its low greenhouse footprint compared to other fossil fuels and competitiveness with renewable energy sources, stands to benefit from a global carbon constraint and Australia, as an established LNG exporter, could be part of this growth opportunity. It is vital that the emissions trading scheme support this outcome.

It is also important that this global carbon constraint is felt efficiently across all LNG consuming and producing nations – in the case of consuming nations to ensure that the greenhouse benefits of LNG are priced appropriately to encourage a demand response in those nations and in the case of producing nations to ensure that production decisions within

[50] The Professor's proposed response is set out on page 44 of the Supplementary Report and would provide that for *"... every unit of production, eligible firms receive a credit against their permit obligations equivalent to the expected uplift in world product prices that would eventuate if our trading competitors had policies similar to our own."* While this sets out a conceptual basis to address this distortion, the practicalities of its implementation in an LNG context, are significant. For example, part of the mechanism involves a calculation of the differential between actual international prices of the EITE product, and the price that would have obtained if all substantial competitor and potential competitor countries applied emissions or energy or carbon prices at similar levels to Australia. In and of itself, this is potentially a very complicated exercise, but in the case of LNG, there are no 'actual' international prices available against which to benchmark outcomes. The nature of the Asia-Pacific LNG market is considered further in Section 5.4.

and between those nations all effectively incorporate the carbon price signal.

Petroleum[51] is currently Australia's third largest commodity export, with LNG making up an increasing proportion of the total. The magnitude of our natural gas reserves means that, with the right policy and fiscal settings, Australia's LNG industry is capable of growing from our current production of around 15½ million tonnes per year to 50-60 million tonnes over the next decade. This could make Australia the world's third largest LNG exporter. Realising this potential would:

- avoid more than 120 million tonnes of CO_2-e per year in the Asia-Pacific region (with every million tonnes of LNG that replaces coal-fired power generation being equivalent to taking more than 500,000 cars off the road);

- create thousands of jobs in regional areas including regional Queensland, the Northern Territory and the north west of Western Australia;

- deliver up to an additional $10 billion per year in Government revenues; and

- stimulate the development of natural gas production for domestic commercial, industrial and domestic use, thereby avoiding greenhouse emissions in Australia.

The LNG industry therefore stands almost alone amongst emissions-intensive trade-exposed industries as the industry that can make an immediate and substantial contribution to reducing global greenhouse gas emissions. Its special case as a 'clean global contributor' must be recognised and supported through the development of the Australian emissions trading scheme.

In addition, and as noted in section 1 above, the industry can play a key role in accelerating the development of CCS technologies in Australia, which has been identified and supported by the Government as a critical greenhouse gas mitigation technology for Australia and plays a key role as a necessary technology in every major economic modeling exercise that examines greenhouse gas mitigation. The expertise in utilising and developing the technologies that are required for CCS both in Australia and on the international stage are oil and gas-related technologies that been used in the industry since the early 1970s.

Policies that impede the growth and development of the upstream oil and gas industry risk delaying the widespread implementation of commercial-scale CCS in Australia. Such an outcome would be inconsistent with the overall objective of the scheme.

[51] Comprising crude oil, liquefied petroleum gas, LNG and other petroleum products.

5.4 The nature of the Asia-Pacific LNG market

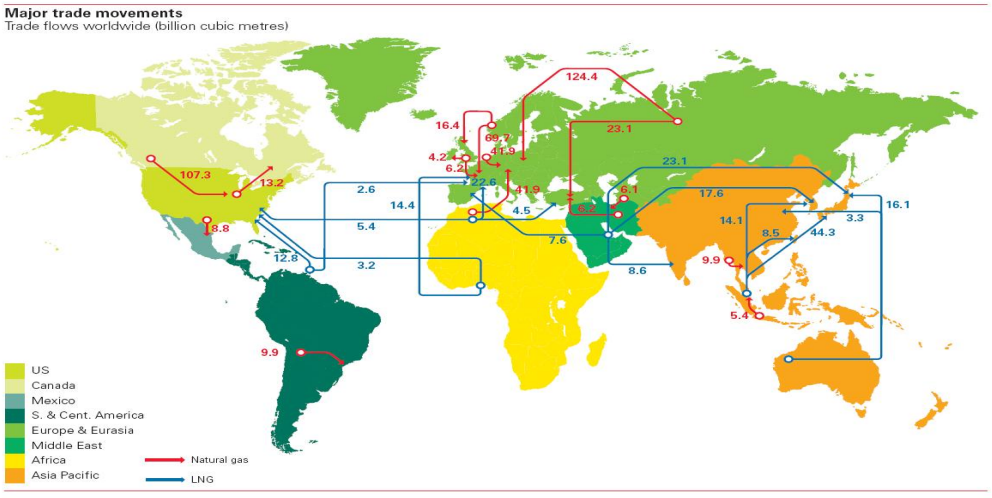
As a part of understanding the nature of the LNG industry and how the treatment proposed in the Green Paper would impact on the industry and its operations, this section presents a brief overview of the nature of the Asia-Pacific LNG market.

The demand for natural gas has grown steadily over the past two decades or more, especially in the Asia-Pacific region where gas consumption has more than quadrupled since 1980. Contributing factors include increased emphasis on environmental issues, which favors the clean combustion properties of gas relative to other fossil fuels, the uptake of technologies such as combined cycle gas power plants, and the commercialisation of abundant gas reserves. Energy security and fuel diversification policies have also played an important role in encouraging gas demand as a means of reducing dependence on imported oil. With limited indigenous gas reserves in many Asia-Pacific countries, imports of LNG have emerged as an important gas supply source in the region.

As noted above, Australia currently exports around 15½ million tonnes of LNG per year, to customers in Japan, China, South Korea and Taiwan. Japan remains Australia's major customer, with around 80 per cent of Australia's LNG exports in 2006-07 hearing to Japan. Australia currently accounts for around 9 per cent of global LNG exports[52].

The following figure shows major global liquefied natural gas trade movements in 2007, highlighting Australia's major markets and major competitors in the Asia-Pacific region.

Figure 4: Major global liquefied natural gas trade movements in 2007



Source: BP (2008)

[52] BP (2008), *BP Statistical Review of World Energy*, June (available at www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2008/STAGING/local_assets/downloads/pdf/statistical_review_of_world_energy_full_review_2008.pdf).

Australia's LNG expansion projects face fierce global competition. Australia's major LNG competitors include Qatar, Algeria, Nigeria, Trinidad & Tobago, Egypt, Brunei, Indonesia, Malaysia, Oman and the United Arab Emirates. The following table shows major LNG trade movements in 2007.

Table 1: Trade movements 2007 – liquefied natural gas

Trade movements 2007 – liquefied natural gas

Billion cubic metres

	From														
To	US	Trinidad & Tobago	Norway	Oman	Qatar	UAE	Algeria	Egypt	Equatorial Guinea	Libya	Nigeria	Australia	Brunei	Indonesia	Malaysia	Total imports
North America																
US	–	12.76	–	–	0.52	–	2.11	3.24	0.50	–	2.69	–	–	–	–	**21.82**
Mexico	–	0.62	–	–	–	–	–	0.99	–	–	0.56	–	–	–	–	**2.17**
S. & Cent. America																
Dominican Republic	–	0.36	–	–	–	–	–	–	–	–	–	–	–	–	–	**0.36**
Puerto Rico	–	0.74	–	–	–	–	–	–	–	–	–	–	–	–	–	**0.74**
Europe																
Belgium	–	0.07	–	–	2.75	–	0.35	–	–	–	–	–	–	–	–	**3.17**
France	–	0.06	0.07	–	–	–	7.85	1.21	–	–	3.78	–	–	–	–	**12.97**
Greece	–	–	–	–	–	–	0.50	0.31	–	–	–	–	–	–	–	**0.81**
Italy	–	–	–	–	–	–	2.43	–	–	–	–	–	–	–	–	**2.43**
Portugal	–	–	–	–	–	–	–	–	–	–	2.31	–	–	–	–	**2.31**
Spain	–	2.09	0.07	0.12	4.45	–	4.32	4.04	–	0.76	8.33	–	–	–	–	**24.18**
Turkey	–	0.06	–	–	–	–	4.45	0.08	–	–	1.42	–	–	–	–	**6.01**
United Kingdom	–	0.39	–	–	0.27	–	0.64	0.16	–	–	–	–	–	–	–	**1.46**
Asia Pacific																
China	–	–	–	0.07	–	–	0.42	–	–	–	0.08	3.30	–	–	–	**3.87**
India	–	0.21	–	0.21	8.27	0.07	0.44	0.07	–	–	0.64	–	–	–	0.07	**9.98**
Japan	1.18	0.57	–	4.81	10.87	7.41	0.78	1.62	0.36	–	0.88	16.05	8.57	18.07	17.65	**88.82**
South Korea	–	0.22	–	6.74	10.79	0.07	0.24	1.48	–	–	0.24	0.56	0.78	5.12	8.15	**34.39**
Taiwan	–	–	–	0.21	0.57	–	0.14	0.41	0.56	–	0.23	0.33	–	4.55	3.92	**10.92**
TOTAL EXPORTS	**1.18**	**18.15**	**0.14**	**12.17**	**38.48**	**7.55**	**24.67**	**13.61**	**1.42**	**0.76**	**21.16**	**20.24**	**9.35**	**27.74**	**29.79**	**226.41**

Source: BP (2008)

It shows that Australia is currently the sixth largest LNG exporter, behind Qatar, Malaysia, Indonesia, Algeria and Nigeria. It also shows that, in contrast to many emissions-intensive trade-exposed industries, countries such as China and India are not competitors, but rather current or potential customers.

A final key point that the table shows is that Australia is the only Annex I country exporting LNG into the Asia-Pacific region that has ratified the Kyoto Protocol and taken on binding greenhouse gas emissions reduction obligations.

World LNG trade is characterised by a relatively small number of suppliers and buyers. There are currently fifteen countries that export LNG and seventeen LNG importing countries. Globally, there are two distinct LNG markets: the Asia-Pacific market and the Atlantic market.

The Asia-Pacific market currently consists of buyers from Japan, Korea, China, Taiwan and, more recently, India, supplied by producers from south-east Asia, Australia, north America and the Middle East. The Atlantic market consists of buyers in north America and Europe, supplied predominantly by producers from north Africa, the Middle East and the Caribbean.

There can, however, be spillover between markets, especially in spot trades. Australia, for example, has exported several LNG cargoes to Spain, Turkey and the United States on a spot market basis.

While geographic separation and LNG transport costs mean that LNG pricing, demand and supply in the Asia-Pacific market have traditionally been relatively distinct from and unaffected by the Atlantic market, LNG markets are becoming more integrated.

Diversification has occurred in recent years, also. Figure 5 shows the number of export markets for individual LNG exporters and the number of suppliers sourced by LNG customers.

Figure 5: Liquefied natural gas export markets and suppliers 2007

Source: BP (2008)

It shows, for example, that while Australia had four LNG markets to which it exported, it is one of thirteen suppliers to its major export customer, Japan.

The LNG market is predominantly based on long-term sales contracts between buyers and sellers[53]. Long-term supply contracts in the Asia-Pacific market tend to be around 20 years in duration and often include take-or-pay and destination clauses.

The use of long-term contracts has enabled both buyers and sellers to undertake the large-scale infrastructure investment involved in LNG transactions with some certainty. However, LNG contracts have become more flexible in recent years. Some of the newer contracts include less rigid take or pay and/or destination clauses, and free-on-board pricing. Buyers thus have more control over import destination and the ability to swap cargoes among themselves. Other recent changes in some contracts include increased flexibility in the timing of deliveries, and a reduction in the linkage of LNG prices to crude oil prices. The increased flexibility and availability of cargoes have facilitated an increase in short-term and spot trading of LNG, which grew from 1 per cent in 1997 to 13 per cent in 2006. In the Asia-Pacific market short-term trading is used

[53] For example, Australia's largest ever export contract – the contract to supply LNG from the North West Shelf Joint Venture to the Guangdong Dapeng LNG project in southern China – is a 25-year supply arrangement. See www.nwsalng.com.au for further details.

mainly by buyers to manage unexpected variations in supply and demand[54].

Figure 6: Liquefied natural gas short-term trading 1997-2006: markets

Source: East-West Center (2007)

5.4.1 Australia's competitive position

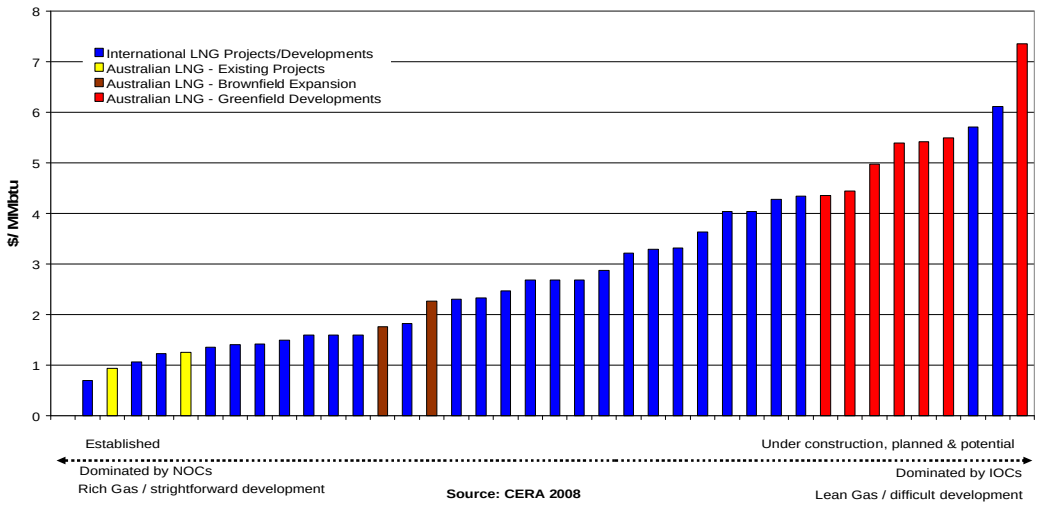
As was noted in section 2.2 above, the Australian upstream oil and gas industry – including the LNG industry – operates within a globally competitive environment. It competes for international investment funding and resources, and sells LNG in competitive international markets.

Recent analysis by Cambridge Energy Research Associates (CERA), however, shows that while existing Australian LNG projects are generally cost competitive, Australia is the highest cost location for new LNG projects supplying the Asia-Pacific market. While Australia has significant gas reserves, and a number of planned or proposed LNG projects, it remains the case that there are only two LNG projects in Australia. This has lead international energy consultants Wood Mackenzie to describe Australia as 'underweight' as an LNG producer[55]. In addition, and as noted above, it is also the only nation with greenhouse gas emission reduction obligations supplying the Asia-Pacific region.

Figure 7, taken from a 19 June 2008 presentation by Woodside Energy to the UBS Australian Resources and Energy Conference[56] and based on the CERA research shows proposed Australian LNG projects all lie at the right-hand (higher cost) spectrum of current LNG developments.

[54] East-West Center (2007), "Natural Gas Markets in APP Countries with a Special Focus on India and China: Regulatory Issues, Cross- Border Trade, and Evolving LNG Contract Structures", *EWC 2006-2007 Energy Research Report Series No.1* (see www.eastwestcenter.org for further information).
[55] Hollins, B (2008), "Australian Gas in a Global Context", *Presentation to the 2008 APPEA Conference and Exhibition*, Perth, 8 April (see www.appea.com.au for further information).
[56] Available at www.woodside.com.au/NR/rdonlyres/A0FCB2FC-8675-4B45-8B65-4919D04B3A25/0/DVUBS.pdf.

Figure 7: Liquefied natural gas project cost profile 2008

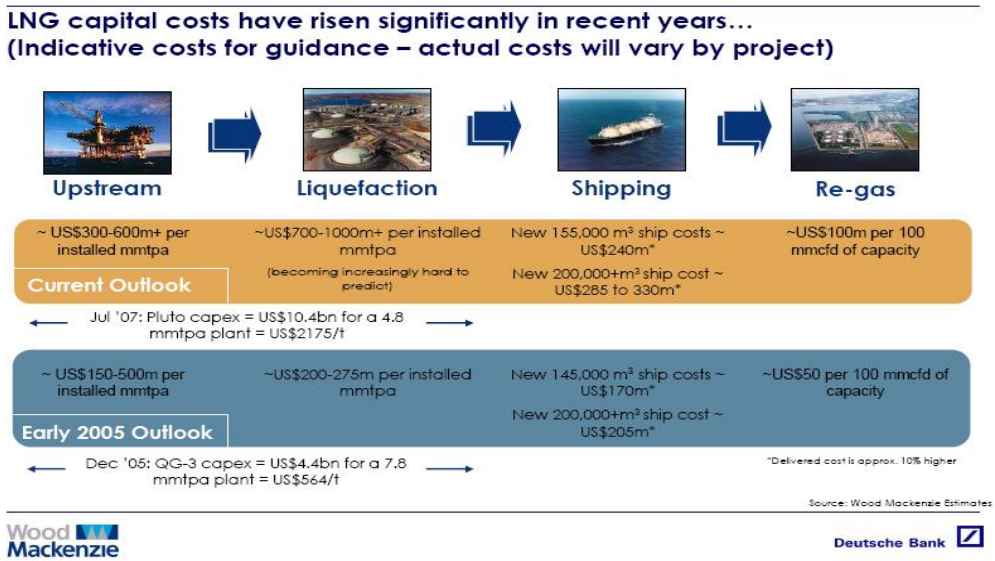


Source: CERA (2008)

This further highlights the importance of ensuring development costs in Australia remain as competitive as possible and that Australian LNG projects should not face costs that competitors do not.

The recent capital cost increases facing the LNG industry in developing new projects is highlighted in this figure from Wood Mackenzie[57], which compares LNG project capital costs between December 2005 and July 2007, illustrating the dramatic rise in capital costs experienced in the industry during this period (on a per tonne basis, LNG capital costs have risen from US$564 to US$2,175, a rise of 286 per cent over the period).

Figure 8: Changes in LNG capital costs December 2005 to July 2007



Source: Wood Mackenzie (2008)

[57] Wood Mackenzie (2008), "The Outlook for Australian LNG ", *Deutsche Bank Energy Seminar*, March (see www.woodmac.com).

5.5 The impact of a domestic emissions trading scheme on the LNG industry in the absence of a global carbon constraint and emissions-intensive trade-exposed treatment

As noted in section 5.3 above, the LNG industry, by virtue of its low greenhouse footprint compared to other fossil fuels and competitiveness with renewable energy sources, stands to benefit from a global carbon constraint and Australia, as an established LNG exporter, could be part of this growth opportunity. It is vital that the emissions trading scheme support this outcome.

However, without a global carbon constraint and the resulting international policy distortion, an emissions-intensive trade-exposed treatment for the LNG industry is required to maintain the industry's global competitiveness until such a global constraint can be achieved.

This section examines the importance of this issue to the Australian LNG industry by considering the impact of an emissions trading scheme on LNG – at both the industry level, through the use of an economic modelling exercise, and at an individual project level, through the use of a hypothetical LNG project model – in a situation where there is no global carbon constraint and the industry does not receive any emissions-intensive trade-exposed treatment.

While, of course, a range of factors are important in determining the location of investments, it is the case that in such circumstances the probability would increase that such investment would be undertaken in a country outside the scheme – that is, outside Australia – with no impact on emissions other than that associated with the drop in aggregate world demand for energy associated with the fall in world output arising as a result of the scheme.

The export income and jobs associated with the projects would be lost to Australia with no positive impact on the environment.

5.5.1 Industry-wide impacts

To examine the potential industry-wide impacts on the LNG industry of a carbon price signal in the absence of an emissions-intensive trade-exposed activity treatment for LNG, APPEA commissioned Concept Economics to undertake analysis of the impact of Australia's proposed emissions trading scheme on the oil and gas industry.

The modelling reported here was conducted using Access Economics' general equilibrium model, called AE-RGEM (Access Economics Regional General Equilibrium Model). This section provides a summary of the full report, which is available from APPEA.

Three emissions reduction trajectories were modelled as follows:

- scenario 1: a 20 per cent reduction in CO_2-e emissions relative to 2000 levels by 2020 and a 30 per cent reduction by 2030 (consistent with a 60 per cent reduction by 2050);

- scenario 2: a 10 per cent reduction in CO_2-e emissions relative to 2000 levels by 2020 and a 20 per cent reduction by 2030 (followed by a trajectory consistent with a 60 per cent reduction by 2050); and

- scenario 3: a zero per cent reduction in CO_2-e emissions relative to 2000 levels by 2020 followed by a trajectory consistent with a 60 per cent reduction by 2050).

The projected impacts on output by sector for Australia as a whole in 2020 and 2030 are shown in Tables 2 and 3 respectively.

In 2020 the impacts on LNG and natural gas output are projected to be significant, with LNG output falling by 37.4 per cent, 26.0 per cent 16.4 per cent under scenarios 1, 2 and 3 (compared to what it otherwise would have done). This result arises for three reasons:

- first, electricity generation is projected to contract significantly under all scenarios and this reduces the overall demand for all fuels for electricity generation;

- second, under the assumptions about the administrative allocation of permits employed in this study, there is an allocation of permits to the coal mining industry whereas there is no allocation to either the natural gas or the LNG industry; and

- finally, a number of industries that use gas in their production processes, for example, the other non-ferrous metals industry including copper and gold, do not receive an administrative permit allocation and as a consequence their output falls relative to what it otherwise would have done. This in turn reduces the overall demand for gas.

The projected impact on the LNG and natural gas industry in 2030 is severe, with LNG output falling by 54.4 per cent, 45.8 per cent and 33.8 per cent under scenarios 1, 2 and 3 (compared to what it otherwise would have done).

Table 2: Impact on output for Australia by sector in 2020 (per cent deviation from the reference case unless otherwise stated)

	Scenario 1	Scenario 2	Scenario 3
Crops	4.2	2.4	0.9
Livestock	1.9	1.1	0.5
Other agriculture	3.9	2.3	1.0
Brown coal	-60.4	-51.4	-38.8
Thermal coal	-28.3	-23.9	-16.5
Coking coal	-14.9	-12.9	-8.1
Crude oil	0.0	0.0	0.0
Natural gas	-34.6	-24.1	-15.6
LNG	-37.4	-26.0	-16.4
Bauxite	-3.8	-2.5	-1.8
Other minerals	1.9	1.2	0.6
Processed food	1.5	1.1	0.8
Lumber and wood products	-20.0	-13.4	-8.5
Petroleum and coal products	2.2	2.5	1.4
Chemicals, rubber and plastic	-2.4	0.3	1.4
Other minerals	-2.4	-1.5	-0.9
Iron and steel	-1.0	-0.7	-0.1
Alumina	-3.7	-2.8	-1.6
Aluminium	-2.7	-1.8	-1.0
Other non-ferrous metals	-49.5	-30.0	-10.4
Pulp, paper and printing	-1.4	-0.4	0.0
Motor vehicles and parts	0.4	0.6	0.6
Electrical equipment	2.9	1.8	1.1
Other manufacturing	4.4	4.4	2.1
Water	-6.4	-4.4	-0.9
Electricity generation	-46.3	-37.8	-21.5
Construction	-9.9	-7.4	-1.5
Air transport	-3.1	2.1	5.0
Water transport	0.6	1.9	1.7
Land transport	-6.5	-4.2	-0.8
Communications	-4.7	-3.1	-0.5
Business services	-5.7	-3.8	-0.8
Government services	-2.1	-1.5	0.0
Other services	-4.7	-3.0	-0.3

Source: Concept Economics (2008)

Table 3: Impact on output for Australia by sector in 2030 (per cent deviation from the reference case unless otherwise stated)

	Scenario 1	Scenario 2	Scenario 3
Crops	5.6	4.5	1.5
Livestock	2.1	2.1	0.8
Other agriculture	6.3	5.2	2.0
Brown coal	-78.2	-72.5	-57.8
Thermal coal	-63.0	-55.3	-34.2
Coking coal	-49.9	-43.3	-25.3
Crude oil	0.0	0.0	0.0
Natural gas	-53.9	-44.5	-30.1
LNG	-54.4	-45.8	-33.8
Bauxite	-5.2	-3.8	-1.3
Other minerals	1.6	2.2	0.9
Processed food	1.6	2.1	1.0
Lumber and wood products	-32.3	-25.7	-15.1
Petroleum and coal products	2.3	4.8	3.5
Chemicals, rubber and plastic	-2.5	0.2	2.4
Other minerals	-2.5	0.2	2.4
Iron and steel	-4.3	-2.1	-1.4
Alumina	-15.2	-12.5	-10.7
Aluminium	-11.1	-8.1	-6.4
Other non-ferrous metals	-67.5	-50.9	-15.7
Pulp, paper and printing	-2.6	-1.0	0.3
Motor vehicles and parts	0.1	0.9	0.9
Electrical equipment	1.7	2.8	1.3
Other manufacturing	4.4	4.4	2.1
Water	-6.4	-4.4	-0.9
Electricity generation	-46.3	-37.8	-21.5
Construction	-9.9	-7.4	-1.5
Air transport	-3.1	2.1	5.0
Water transport	0.6	1.9	1.7
Land transport	-6.5	-4.2	-0.8
Communications	-4.7	-3.1	-0.5
Business services	-5.7	-3.8	-0.8
Government services	-2.1	-1.5	0.0
Other services	-4.7	-3.0	-0.3

Source: Concept Economics (2008)

5.5.2 Impact on a "hypothetical" Australian LNG project

To review both the underlying project economics of a large-scale gas project and the potential impact of introducing a carbon cost on an Australian project where there was not similar cost placed on competitors

and where there was no emissions-intensive trade-exposed treatment for LNG exports, a detailed case study was prepared.

The underlying assumptions for a 'standalone' LNG project were sourced from publicly available information prepared by leading global energy consultants Wood Mackenzie[58], FACTS Global Energy[59] and CERA[60] with a view to replicating the costs and revenues that realistically could be expected in the development of such a project in Australia. Obviously, for any real project, with its particular reservoir and location characteristics and specific engineering and marketing parameters, the analysis is more detailed and complex – but the hypothetical is considered realistic.

Key project assumptions were as follows:

- project structure— two train LNG plant;
- production facility— fixed-leg offshore structure;
- CO_2 in raw gas (3-18 per cent);
- project life— 2013-14 to 2043-44;
- production— 10 million tonnes a year of LNG;
- project is condensate dry (minimal associated liquids);
- development costs— $23.2 billion (undiscounted);
- operating costs— $450 million a year (undiscounted);
- prices— Wood Mackenzie: JCC[61] US$76/barrel in 2014 (nominal) – thereafter 2.5 per cent per year escalation, LNG US$7.93/MMBTU[62] in 2014 (nominal). FACTS Global Energy: LNG U$14/MMBTU
- discount rate— 10% (real).

[58] Wood Mackenzie is a global consulting company that provides commercial analysis and strategic advice to energy companies. See www.woodmac.com for further details.
[59] FACTS Global Energy is a consulting firm specialising in the oil and gas sector worldwide with special focus on the East of Suez markets. See www.fgenergy.com/home.php for further information.
[60] Cambridge Energy Research Associates (CERA) is an advisor to international energy companies, governments, financial institutions, and technology providers. See www.cera.com for further information.
[61] The Japan Customs-cleared Crude (JCC) is the average price of custom-cleared crude oil imports into Japan (formerly the average of the top twenty crude oils by volume) as reported in customs statistics. It is a commonly used index in long-term LNG contracts in Japan, Korea and Taiwan. See www.paj.gr.jp/english/index.html for further information.
[62] MMBTU = One million British Thermal Units (BTU). BTU is a standard unit of measurement used to denote both the amount of heat energy in fuels and the ability of appliances and air conditioning systems to produce heating or cooling. A BTU is the amount of heat required to increase the temperature of a pint of water (which weighs exactly 16 ounces) by one degree Fahrenheit. MMBTU is used as a standard unit of measurement for natural gas and provides a convenient basis for comparing the energy content of various grades of natural gas and other fuels.

Simulations were conducted to highlight both the underlying economics of the project and the impact of a range of carbon costs (permit prices of $20, $50 and $100).

Key results are set out in the following two tables.

Table 4: Results – Wood Mackenzie Price Scenario

	NPV(10) ($m)	IRR (%)	
Reference case - no carbon cost	**1,793**	**11.22%**	
with CO2 costs - Mid case - mid range	516	10.39%	
sensitivity on raw gas CO2 content - high content	70	10.05%	
sensitivity on raw gas CO2 content - low content	907	10.66%	
raw gas CO2 cost not deductible for PRRT	502	10.38%	
sensitivity on fuel gas CO2 emissions - high usage	373	10.28%	
sensitivity on fuel gas CO2 emissions - low usage	659	10.49%	
fuel gas usage deductible for PRRT	534	10.40%	
CO2 permit cost - high	70	10.05%	
CO2 permit cost - low	907	10.66%	

Range of variables	low	mid	high
CO2 permit costs (real terms 2008 A$/ton)	20	50	100
raw gas CO2 content (volume %)	3	10	18
fuel gas CO2 emissions (t CO2/ t LNG)	2.8	3.5	4.1
raw gas cost of CO2 permit deductible for PRRT	no	yes	yes
fuel gas cost of CO2 permit deductible for PRRT	no	no	yes

Table 4 shows that under the Wood Mackenzie price assumptions, the project's internal rate of return (IRR) in the "reference case" (absent any carbon costs) is 11.22 per cent. The IRR measures the overall return on the funds invested. At 11.22 per cent, this represents a marginal project – similar projects would generally aim for a return above this level. With "mid-case" "mid-range" carbon costs, the project is substantially impacted – the IRR falls to 10.39 per cent. Even at a "low" carbon cost, the project's IRR falls to 10.66 per cent, which may be enough to impact investment decision-making.

Table 5: Results – FACTS Global Energy Price Scenario

	NPV(10) ($m)	IRR (%)	
Reference case - no carbon cost	**6,027**	**14.03%**	
with CO2 costs - Mid case - mid range	4,742	13.30%	
sensitivity on raw gas CO2 content - high content	4,288	13.02%	
sensitivity on raw gas CO2 content - low content	5,138	13.53%	
raw gas CO2 cost not deductible for PRRT	5,135	13.53%	
sensitivity on fuel gas CO2 emissions - high usage	4,597	13.21%	
sensitivity on fuel gas CO2 emissions - low usage	4,885	13.39%	
fuel gas usage deductible for PRRT	4,752	13.31%	
CO2 permit cost - high	3,457	12.44%	
CO2 permit cost - low	5,770	13.88%	

Range of variables	low	mid	high
CO2 permit costs (real terms 2008 A$/ton)	20	50	100
raw gas CO2 content (volume %)	3	10	18
fuel gas CO2 emissions (t CO2/ t LNG)	2.8	3.5	4.1
raw gas cost of CO2 permit deductible for PRRT	no	yes	yes
fuel gas cost of CO2 permit deductible for PRRT	no	no	yes

Table 5 uses FACTS Global Energy's price assumptions, with all other variables unchanged. The project's IRR in this case is a more competitive 14.03 per cent. With "mid-case" "mid-range" carbon costs, the project is substantially impacted –the IRR falls to 13.30 per cent. The carbon cost is this case is around $380 million per year (pre-tax). Even at the low permit price, while the impact appears small (the IRR falls to 13.88 per cent), this may still be sufficient to impact the decision to go ahead with the project, particularly if the project proponents have a range of international project investment options.

This analysis undertaken in sections 5.5.1 and 5.5.2 highlight a number of key points:

- any suggestion that the LNG industry is easily able to absorb the likely cost of emissions permits, especially in this era of high oil prices, is ill-founded;

- carbon costs of the kind illustrated in the tables (particularly if, as expected, they rise into the future) would represent a substantial addition to operating costs and a substantial reduction in profit margin. Most importantly, with competitors not facing comparable costs, the decision about which project proceeds next and whether a particular project proceeds at all, may be affected; and

- a likely outcome in many cases for this hypothetical development proposal is that it would proceed in Australia in the absence of a carbon cost but, with all Australia's LNG competitors avoiding such costs (and hence with no prospect of recouping extra costs in the market), the project would be severely challenged otherwise. In every likelihood, this project would join the long queue of "possible" projects. This would be an unfortunate outcome for Australia. The omitted or deferred investment funds would be spent elsewhere in the world, for not no global emissions benefit.

5.6 The way forward: options to provide an appropriate treatment of emissions-intensive trade-exposed industries

It is clear, then, that the Green Paper's preferred positions on emissions-intensive trade-exposed industries fail to meet the Government pre-election commitments, and in the case of the LNG industry, risk the perverse outcome of constraining an industry that has the immediate prospect of achieving the scheme's ultimate objective of helping the world to reduce emissions, while contributing to Australia's economic growth.

In summary (and, as will be considered below, there may be different ways of achieving this), the industry believes that there is a compelling case for not having the Australian LNG industry bear an additional cost impact for as long as our competitors are not subject to a similar impost.

5.6.1 *Accommodating growth in emissions-intensive trade-exposed industries*

One of the key shortcomings of the Green Paper's preferred positions on emissions-intensive trade-exposed industries is its absence of any substantial allowance for new growth in these industries. Indeed, the proposals that the rate provided to the emissions-intensive trade-exposed industries should fall over time with the intent that the share provided not increase significantly over time will have the opposite effect – ongoing and unpredictable increases in costs and ever diminishing global competitiveness.

This issue is particularly important for the Australian LNG industry, which stands to benefit from a global carbon constraint and has an aspirational target highlighted above of tripling LNG exports over the next decade.

While APPEA recognises the preferred positions in the Green Paper have made a partial attempt to consider this issue, and while APPEA also recognises that there may be other ways to achieve the overall objective in this area – to ensure new growth can be accommodated – one of the ways in which achieving this outcome has been proposed previously was set out on page 194 of the report of the Task Group on Emissions Trading in 2007, and is to allow for an equivalent increase to be made to the scheme's overall emissions cap (at successive review points), to minimise the welfare implications on other sectors of the economy. This proposition remains valid, even in the face of Australia's ratification of the Kyoto Protocol (which itself only runs to 2012). It also recognises that:

- when these internationally mobile industries move to Australia it is displacing an investment in equivalent capacity elsewhere in the world, that is, the proposal does not result in any increase in global emissions, while ensuring investment is not inappropriately or inefficient discouraged from Australia; and

- this issue arises from the failure of Governments to negotiate a global carbon constraint (or appropriate sectoral agreements), by placing the issue directly into the international negotiations and making it clear that it is incumbent upon Governments, including Australia, to negotiate a satisfactory outcome.

Australia must do all it can to secure a binding international or sectoral agreement. Once this is secured the emissions-intensive trade-exposed issue dissolves and features designed to correct any international policy distortions are unnecessary.

Post Kyoto negotiations on binding targets and scheme design must take account of Australia's potential for substantial growth in its LNG industry over the next two decades.

In this context, APPEA would refer you to the AIGN submission to the Joint Standing Committee on Treaties *inquiry into the Kyoto Protocol to the United Nations Framework Convention on Climate Change*[63], which notes current Australian domestic policy developments cannot be considered in isolation from the international negotiations that are progressing under the UNFCCC. The position that the Australian Government takes in negotiating its future international commitments has critical implications for the design of a domestic emissions trading scheme, and the determination of the emissions 'cap' in that scheme. In the absence of an agreement among countries, this means building into Australia's emission budget room for new emission-intensive trade-exposed projects in Australia.

APPEA recommends the emissions-intensive trade-exposed treatment proposed be amended to allow for, and in the case of LNG actively encourage, new growth. APPEA also supports AIGN's call for more work to be done to identify and analyse potential international approaches that might progress the negotiations.

A final issue here is to ensure the treatment allows for the development of new technologies (for example, floating LNG technologies[64]) or new potential emissions-intensive trade-exposed activities not currently undertaken in Australia (such as gas-to-liquids[65] projects) to ensure new technologies or new processes are not inappropriately "locked out" of emissions-intensive trade-exposed treatment.

5.6.2 Emissions-intensive trade-exposed options

Until an appropriate international agreement is secured, Australia's LNG industry must not be subject to a cost of carbon unless its customers and competitors are subject to a similar cost.

There are a number of ways in which the emissions-intensive trade-exposed treatment could be delivered through the White Paper and associated legislation, including:

- the inclusion of an additional 'clean global contributor' (CGC) mechanism and a materiality threshold for emissions-intensive trade-exposed industries (to be redefined) whose growth in Australia is likely to deliver a substantial 'net' greenhouse gas emissions reduction benefit to the world

    - this would include permit allocation of 100 per cent of requirements (scope 1 and scope 2 emissions) for as long as our competitors are

[63] See www.aph.gov.au/house/committee/jsct/25june2008/tor.htm for further information.
[64] Floating LNG Liquefaction Units (FLNG) allow production, storage and offloading of LNG on a single floating facility, without the need for onshore infrastructure.
[65] Gas-to-liquids (GTL) refers to the conversion of natural gas into high-value liquid fuels (including methanol, dimethyl ether and middle distillates), specialty chemicals and waxes.

not subject to a similar impost and provision for new growth in the LNG industry

- if emissions-intensive trade-exposed industries are kept within the scheme but are rebated in permits, then they still have incentives to abate if possible, because they can then sell the permits

- they may also face the possibility of benchmarking – for new investments – against an appropriately defined measure of technically feasible good practice or another mechanism to ensure they operate in a manner broadly consistent with a carbon constraint (an example may be a version of the Energy Efficiency Opportunities (EEO) scheme, which could audit existing and proposed emissions-intensive trade-exposed projects to ensure they are implementing economically and technically feasible emissions mitigation or management processes and practices (that is, processes and practices consistent with currently applied 'best' practice))

- this would also involve removal of the arbitrary cap on permit allocations to emissions-intensive trade-exposed industries and the proposal for the mechanism to be arbitrarily reduced over time;

- substantial amendments to the definition methodology, thresholds, decay trajectories and the inclusion of a 100 per cent permit allocation.

Where the CGC test is not met, the industry would be assessed for (redefined) emissions-intensive trade-exposed status.

An additional option may be permit allocation of less than 100 per cent (perhaps along the lines proposed in the Green Paper) with the residual impact on competitiveness offset through other policy measures (for example, through the fiscal regime). Such a package would need to be signalled as part of the White Paper at the end of 2008 and delivered through a process of direct consultation with the industry, separate from other review processes (such as the Australia's Future Tax System Review).

However it is delivered, it is vital that the amended emissions-intensive trade-exposed treatment meet the Government's pre-election commitments and ensure industries such as Australia's LNG industry do not bear an additional cost impact for as long as our competitors are not subject to a similar impost.

6. ASSESSING THE IMPACTS OF GREENHOUSE POLICIES: ECONOMIC MODELLING EXERCISE(S) UNDERWAY THROUGH THE AUSTRALIAN TREASURY

There are large numbers of studies that have been conducted into the economic impacts of introducing alternate greenhouse policies, both in

Australia and internationally. However, many of these studies are aggregate in nature and provide only limited insight into the sector specific nature of the impacts of emissions abatement, including on the Australian upstream oil and gas industry.

APPEA notes modelling exercise(s) underway through the Treasury (involving, as APPEA understands, both 'in-house' and external modelling provided by private sector specialists) for the Australian Government's assessment of the impacts of an emissions trading scheme on the Australian economy and on Australian industries, including the impacts of climate change, and the costs and benefits of mitigation and adaptation to climate change. This will be a key input into setting overall limits on emissions and therefore the overall emissions target Australia will achieve in both the medium- and long-term.

APPEA joins with other stakeholders that have expressed their concerns at both the lack of transparency, consultation and timeliness associated with this modelling exercise. Such an approach does little to engender industry confidence in the outcomes of this exercise, which is a crucial input into the development of an efficient and effective emissions trading scheme in Australia.

6.1 Key issues associated with economic modelling exercises

In studying the output of the various modelling exercises there are a number of important points to keep in mind:

- the estimated impact of emissions abatement and the timing of that impact on the upstream oil and gas industry will depend on both the scheme coverage and the weighting system used to weight the gases in a multi-greenhouse gas strategy. The estimated cost effective strategy when employing global warming potentials to calculate the weights will imply earlier reduction of methane than the optimal policy calculated using an inter-temporal model based directly on radiative forcing. This implies that many of the studies are not directly comparable; and

- in most instances there will be both output and substitution effects to account for as a result of the introduction of emissions abatement policy. For example, the impact of an emissions trading scheme will be to raise the price of electricity and therefore to reduce the total demand for electricity. The overall revenue effect of this will depend on the structure of the industry and the elasticity of demand for electricity. In the long-run, new investments would be needed in electricity generation if for no other reason than to replace fully depreciated plant and there would be an incentive to invest in lower emissions technology. Appropriately, such new investment would favour low emission new gas-fired plant as opposed to coal-fired plant;

- there appears to be a presumption in many debates on emissions trading that grandfathering of emissions permits will occur and that such grandfathering will lead to perfect compensation for the introduction of the scheme. While full compensation (in terms of allocating enough permits to cover 100 per cent of current emissions) is possible for a subset of sectors, it is not possible for the whole economy. This is because emissions abatement implies a reduction in total emissions and therefore full compensation for the economy as a whole is not consistent with a requirement to reduce emissions to an amount below current levels;

- when considering the impact of abatement on particular sectors it is necessary to account for their level of trade exposure and their emissions intensity. A domestic oriented industry facing an inelastic demand curve for its product will be in a better position to pass on to consumers the additional costs arising from the introduction of abatement policy, whereas an export industry that is a price taker will bear the full burden of the increase in domestic costs (unless a global scheme is in place). This export industry focus is true of many parts of the upstream oil and gas industry in Australia, most particularly LNG exporters; and

- a final consideration in establishing the potential impact of greenhouse policies is the nature of the policy instrument used to achieve the announced emissions abatement and the design features of that policy. These issues have already been canvassed above.

APPEA recommends the modelling assumptions and results be released for full and open public consultation as soon as possible and the opportunity be made available to stakeholders for issues raised in the Green Paper to be revisited on the basis of the modelling results. APPEA looks forward to being involved in this consultation process.

7. AN EFFECTIVE GREENHOUSE POLICY RESPONSE: ADDITIONAL MEASURES AND POLICY RATIONALISATION

One of the shortcomings of the Green Paper is its failure to assess the entire Australian greenhouse policy framework and develop an integrated package of reform proposals.

This section considers the additional steps that might be taken, in Australia, consistent with the goal of establishing an emissions trading system, other domestic initiatives that might also exist which could also help prepare Australia for the emergence of an emissions trading system and other policies that may be worth pursuing in their own right. It also considers the way that a national emissions trading scheme creates the potential for significantly rationalising existing greenhouse policy response measures.

7.1 Other greenhouse policy response measures

As was noted above, APPEA recognises that a comprehensive greenhouse policy framework requires a range of measures, some of which may complement an emissions trading scheme and others of which are justified in their own right. The key programs/policy areas for APPEA include:

- the Greenhouse Challenge Plus Program – as noted above, the APPEA chief executive is the co-Chair of the Industry-Government Greenhouse Partnership Committee

  - the nature and form of the Greenhouse Challenge Plus Program, in the light of the implementation of an emissions trading scheme in Australia, is currently under review and APPEA is playing an active role in that process;

- removal of regulatory impediments to the greater use of gas in the national energy market – including via cogeneration and distributed energy uses

  - one of the most immediate and beneficial policies that could be introduced (and a change that, as discussed below, would be an efficient precursor to the introduction of an emissions trading scheme) would be to remove subsidies (including preferential fiscal treatment) that produce distortionary effects and perverse outcomes, in relation to energy source decision-making. Removal of such distortions would have an immediate effect of altering the relative prices of different energy sources

  - in particular, Australia has a number of different tax regimes facing the various energy sources in Australia, with offshore gas taxed more heavily than competing sources, particularly coal. This implies offshore gas could compete more effectively into domestic power generation on price if it was treated equally from a resource taxation standpoint

  - the current system of fiscal arrangements between the State and Australian governments is therefore restricting competitive market forces and effectively pricing offshore gas out of competition for, in particular, base-load power generation[66]

[66] APPEA (2004), *NatGas: generating economic and social wealth for the nation now and in the future*, Canberra, February (see www.appea.com.au/content/pdfs_docs_xls/PolicyIndustryIssues/NATGASfullreportFINAL.pdf) and Nolan, M (2006), "Energy Outlook: Challenges and Opportunities for Australia", Speech by Mr Mark Nolan, Chairman, ExxonMobil Australia to American Chamber of Commerce in Australia (AMCHAM), 6 April (see www.exxonmobil.com/Australia-English/PA/Newsroom/AU_NR_Speeches_Amcham.asp).

- in addition, and was highlighted recently by the Ministerial Council of Energy (MCE)[67], a range of reforms may be required to ensure the energy market can accommodate changes associated with the introduction of an emissions trading scheme. APPEA note the MCE directed the Australian Energy Market Commissions (AEMC) to undertake a Review of Energy Market Frameworks in light of Climate Change Policies[68]. APPEA supports this work and looks forward to consultation with the AEMC on these important issues;

- appropriate investment incentives. A national medium- to long-term technology strategy for the development and adoption of commercially viable low emission or greenhouse mitigation technologies is a critical element of the approach industry proposes. Such a strategy should take account of R&D activities being pursued by Australian operating companies in a global context. Research funded by industry and government might include, but not be limited to:

  - development of distributed energy technologies based on natural gas and also the development of technologies to allow their effective incorporation into the national grid;

  - use of high efficiency combined cycle turbines;

  - developing efficient end-use gas based technologies (for example, gas fuelled air conditioning);

  - CCS; and

  - research into more efficient and cost effective pipeline construction technologies, gas processing and industrial processes.

  Australia should not seek to be the world leader in all of these areas. Rather, it should pursue a series of specific international bilateral and multilateral technology agreements where there are discernible benefits to all parties. Government needs to be careful to avoid trying to "pick winners" and should instead concentrate on setting the right policy framework to facilitate scientific and technological innovation and eliminate barriers to the adoption of suitable, commercially viable technologies. R&D into abatement technologies should be encouraged through funding and fiscal incentives and supported through policy. The pursuit of global corporate partnerships also potentially offers benefits in this regard.

[67] Ferguson, the Hon Martin AM MP (2008), "MCE to Provide Energy Security Input to CPRS and RET Development", *Media Release*, 31 July (available at minister.ret.gov.au/TheHonMartinFergusonMP/Pages/MCETOPROVIDEENERGYSECURITYINPUTTOCPRSANDRETDEVELOPMENT.aspx).
[68] See www.aemc.gov.au/electricity.php?r=20080822.183804 for further information.

7.2 The need to rationalise existing greenhouse policy response measures

The growth of separate Australian Government and State and Territory Government policies and greenhouse initiatives and their lack of consistency are increasing costs and uncertainty for Australian industry, including the upstream oil and gas industry.

This cost and uncertainty and the associated sovereign risk, misallocation of resources and deadweight losses to the economy associated with the hotchpotch of greenhouse measures in Australia is significant and is growing.

APPEA notes and supports the work underway through the Council of Australian Governments (COAG) to attempt to address some aspects of the need for a national approach.

APPEA also notes the process underway at the national level, through the strategic review of the Government's climate change policies, announced on 27 February 2008[69]. This report was due to the Minister for Finance and Deregulation, the Hon Lindsay Tanner MP, at the end of July 2008. APPEA notes, however, that the report has not been made public.

The APPEA submission to the Strategic Review of Climate Change Policies noted a single, nationally coordinated approach by all Australian governments is urgently required. The submission also set out APPEA's views on the future of a number of existing or proposed policies, including the Energy Efficiency Opportunities (EEO) program and the proposed expansion of the mandatory Renewable Energy Target (RET).

In relation to the EEO scheme, the APPEA submission noted with the introduction of a domestic emissions trading scheme from 2010, the reason for EEO's existence, to encourage

> *... large energy-using businesses to improve their energy efficiency. It does this by requiring businesses to identify, evaluate and report publicly on cost effective energy savings opportunities ...* [70]

is redundant. By directly placing a price on carbon, the emissions trading scheme will provide a direct and powerful incentive to identify, evaluate and, where cost effective, act on any energy efficiency opportunities. Therefore, while EEO will have served a purpose prior to the advent of an emissions trading scheme, APPEA recommends that, upon commencement of the emissions trading scheme, the EEO program be

[69] See www.environment.gov.au/minister/wong/2008/pubs/mr20080227.pdf for further details.
[70] See http://www.energyefficiencyopportunities.gov.au/index.cfm?event=object.showContent&objectID=1E2C7ADB-BCD6-81AC-1DD2BCE4E088C6FB for further information.

discontinued[71]. The logical point to do this is at the end of the first five year assessment period, in 2010-11. The same result needs to be enforced for State based mandatory energy efficiency measures.

In relation to the RET, APPEA notes the Australian Government has committed to the introduction of a national and significantly expanded RET scheme, to require 20 per cent of electricity to be sourced from renewable sources by 2020. The Government has also announced it will consider phasing down the scheme between 2020 and 2030.

APPEA recently lodged a submission to the Department of Climate Change consultation paper *Design Options for the Expanded National Renewable Energy Target Scheme*[72].

The submission notes that on the basis of the modeling completed for APPEA and the work of the Productivity Commission[73], the industry is of the view that support for renewable energy technologies and their commercialisation can be more efficiently met through other measures, such as a "commericalisation fund".

In addition, State governments should not introduce policies and mechanisms inconsistent with a national approach. Importantly, this includes greenhouse gas abatement requirements that may be imposed as part of State environmental approval processes. Such requirements are redundant in the face of an emissions trading scheme and should be removed from existing approval conditions and not included in any new approval processes.

In summary, the introduction of an emissions trading scheme, such as the one proposed in the Green Paper, must be accompanied by a significant rationalisation of greenhouse measures across all Australian jurisdictions. Every existing measure should be subjected to a rigourous cost-benefit analysis and only those measures that can definitively demonstrate their net benefits should be considered for retention. Under no circumstances should an emissions trading scheme merely be added to the hotchpotch of existing measures.

In addition, the report of the Strategic Review of Climate Change Policies and the Government's response must be made public as soon as possible.

[71] A modified and refocused EEO program may, as considered in Section 5.6.2, retain an ongoing role for emissions-intensive trade-exposed industries.
[72] The APPEA submission is available at www.climatechange.gov.au/renewabletarget/consultation/pubs/012apia.pdf.
[73] Through the Commission's submission to the Garnaut Climate Change Review, available at www.pc.gov.au/research/submission/garnaut.

ATTACHMENT 1: APPEA GREENHOUSE RESPONSE STRATEGY

AUSTRALIAN PETROLEUM PRODUCTION & EXPLORATION ASSOCIATION LIMITED

GREENHOUSE RESPONSE STRATEGY

COMMITMENTS OF THE UPSTREAM OIL AND GAS INDUSTRY

PUBLIC POLICY RESPONSE: A GOVERNMENT/INDUSTRY PARTNERSHIP

(AS AT NOVEMBER 2003)

APPEA GREENHOUSE RESPONSE STRATEGY

APPEA, and its members, are committed to working towards a profitable, safe, environmentally responsible and socially responsible oil and gas exploration, development and production industry. As a part of this, APPEA wants to work with governments to achieve credible industry actions and governmental greenhouse policies that address greenhouse concerns in an economically and commercially viable way.

The Council of Australian Governments (COAG) recognises in its energy policy of 8 June 2001 that Australia will be dependent on fossil fuels to meet its energy needs for the foreseeable future.

It should be noted that gas as a fuel, particularly in power generation, can create improved emissions outcomes in Australia and that LNG exports can contribute to an improved global outcome. In that context, APPEA supports the removal of regulatory impediments to the increased use of gas.

In addition to commitments by the upstream oil and gas industry, APPEA is seeking to develop a public policy response that meets the needs of State and Commonwealth governments and fits within the following three components:

- immediate actions;
- medium term responses; and
- longer term policy principles.

COMMITMENTS OF THE UPSTREAM OIL AND GAS INDUSTRY

APPEA members:

- will continue to create and take opportunities for economic emission abatement and sequestration;
- are committed to continuous improvement in relation to both emission abatement and sequestration as new technology becomes commercial;
- support the Greenhouse Challenge Program to promote further emission abatement;
- will examine all commercially practicable options for improved energy efficiency;
- continue to work with customers to promote the efficient use of products; and
- are financing and participating in R&D into the geological disposal of CO_2 and will consider other opportunities for R&D into sequestration and emission abatement.

APPEA is ready to input into modelling work on greenhouse projections and to participate in dialogue as government develops policy to ensure that APPEA is part of the debate process and can help influence a least cost outcome for the industry and its major customers.

APPEA will take opportunities to brief all stakeholders, including environmental NGOs, on APPEA's position on greenhouse abatement.

PUBLIC POLICY RESPONSE: A GOVERNMENT/INDUSTRY PARTNERSHIP

Immediate Actions

APPEA believes all governments in Australia should adopt a nationally coordinated approach to greenhouse policies. State governments should not introduce policies and mechanisms inconsistent with a national approach. APPEA welcomes the commitment by State and Territory government leaders on 29 August 2003 to working with the Federal Government to achieve a national approach to this important issue.

Governments need to continue to recognise that greenhouse policies must allow Australian industry to maintain its international competitiveness. APPEA will work with government to develop ways to maintain international competitiveness in keeping with the Commonwealth Government's commitments to industry, including the *2000 LNG Action Agenda*. In this regard, the Government should take into consideration international developments and their implications for Australia in its policy formulation.

The impact of greenhouse policies on the industry's customers needs to be recognised as a critical test of the appropriateness of greenhouse policies. In addition, the commitment by the Commonwealth Government on No Disadvantage for Early Movers is essential in maintaining Australia's international competitiveness and keeping Australia attractive to investment.

Medium Term Responses

In the policy framework formulated by the Australian government, APPEA supports and advocates a four-point program for joint government/industry action to deliver a national approach to greenhouse gas emissions management which extends into the next decade and beyond. Technology alone will not provide the solution to long term reductions in emissions levels. APPEA will work with governments on other initiatives which reduce emissions cost effectively and maintain Australia's export competitiveness.

- The Association would argue that all initiatives proposed for inclusion in such a program must be exposed to a robust, independent assessment of their costs, community impacts and benefits before they are pursued.

APPEA supports the following 'foundation set' of four policy thrusts to facilitate the current and forward strategies for greenhouse gas management in Australia. The four key strategies are:

1) support for continued pursuit by Australia of an *international negotiation process* that meets the needs of Australia and also sets a path forward for comprehensive global action;

2) implementation of an *enhanced greenhouse impacts modeling program* directed at giving better information on climate impacts (variable, intensity, variability, timing, location);
3) implementation of a *mandatory national emissions reporting and verification system*;
4) development by Australia of a flexible portfolio of *emission abatement actions* incorporating:
   a. the retention and enhancement of some existing programs;
   b. a national end-use efficiency program;
   c. consideration of the development of appropriate administrative mechanisms or processes directed at giving industry greater certainty about greenhouse outcomes; and
   d. a strategy for the development and adoption of commercially viable low emission technologies.

Effectively:

- strategy 1 sets the long term policy context within which a flexible national approach will need to evolve. This would be progressively refined over time, e.g. as the role of the Kyoto Protocol became clearer and a better understanding is gained on (but to clarify this context we need to know whether Russia will ratify Kyoto and know how the post 2012 treaty negotiations, which commence in 2005, might evolve);
- strategies 2 and 3 will deliver an adequate factual data base to allow company and national responses to be properly formulated; and
- strategy 4 is an actions package.

An alternative way of viewing the strategies 2-4 is that:

- strategy 2 is about adaptation; and
- strategy 3 and 4 are about emission abatement.

<u>Strategy 1</u>: The International Commitment

Climate change is a global issue and requires comprehensive global agreement if it is to be effectively addressed. Development of effective international arrangements (whether multilateral or of another kind) must be a central part of any national policy approach. Where appropriate, Australia should continue to pursue bi-lateral and pluri-lateral agreements, particularly in relation to RD&D. APPEA (and/or its member companies) will participate in activities under international agreements, including:

- geo-sequestration work under the Bilateral Agreement with the USA;
- policy and technical work as part of the Carbon Sequestration Leadership Forum (for example a substantial body of work will be done over the next six to twelve months on global regulation of geo-sequestration);
- the promotion of natural gas as apart of the APEC energy work (helping us to develop LNG market opportunities); and
- promotion of zero emission technologies by international agencies such as the International Energy Agency and the World Bank.
- The development of effective international arrangements should be aimed at achieving the least-cost outcome for Australia and the

global community. Above all, it is the reduction in net global emissions of greenhouse gases that is important and international agreements should reflect this.

Strategy 2: The Adaptation Commitment - Enhanced Greenhouse Impacts Modeling Program

Once adequate location specific data on potential impacts of climate variability are available, APPEA member companies will, as appropriate, review (and if necessary adapt) their risk management strategies (encompassing engineering design, safety and environmental assessments) to reflect new learnings on the likely impacts of climate variability). Government will also need to complement industry action by developing risk management strategies in areas such as health care, water supply, emergency services and suitable developments in coastal areas and on flood plains. This sort of action planning should give the community greater confidence about how the greenhouse issue is being addressed.

Strategy 3: Mandatory Emissions Reporting

A mandatory national emissions reporting and verification system should be developed. The methodologies and tools for this should be consistent with the Greenhouse Challenge Program objectives and internationally recognised emission estimation methodologies. This would be applicable to all organisations/facilities emitting over an agreed threshold. A lower threshold could potentially be phased in over time.

Without an adequate emissions database/emissions inventory, companies cannot calculate the likely impact of particular policies on their bottom line and government can't adequately develop well targeted and effective policies. Both government and industry get better information on the cost and difficulties of assembling credible data that will meet commercial and policy integrity requirements.

Strategy 4: The Development of a National Portfolio of Emission Abatement Actions

(a): The Australian Government must act to ensure efficient continuation of a number of existing programs to encourage industry and government instrumentalities to continue to take all commercially practicable measures to abate emissions. The continuation of these programs is essential, particularly in meeting the 108 percent objective, but also in laying the foundation for two of the other vital elements of the Abatement Package proposed by APPEA, namely administrative mechanisms or processes and a comprehensive national end-use efficiency program designed to achieve a cost-effective, world-class approach to efficient energy use.

The key programs/policy areas for APPEA include:

- the Greenhouse Challenge Program – APPEA is committed to continuing to be an active participant in this program;

- removal of regulatory impediments to the greater use of gas in the national energy market –including via cogeneration and distributed energy uses; and
- investment incentives, such as an enhanced version of the Greenhouse Gas Abatement Program (GGAP).

It must also be recognised that there must be an equitable share of the abatement across the economy and not merely targeted at any particular industry. As such, continuation of programs targeted at end-use efficiency and land use measures, including cessation of land clearance, constraint of urban sprawl and re-vegetation programs, are an integral component of the portfolio of abatement actions.

(b): An end-use efficiency program would focus on efficiency on both the demand and supply side. In particular, it would require a strong focus on use at the household and small business level. Further, it would need to look at appropriate cogeneration and distributed energy technologies. In many instances, outcomes may best be achieved through investment incentives. While there is a requirement for new programs to address end-use efficiency, there are a number of programs that are already in operation, but these would need to be expanded. These include:

- enhanced building codes; and
- an energy efficiency labeling programs.

(c): Taking into account relevant global experience, consider a range of appropriate and flexible administrative mechanisms or processes to encourage additional cost effective reductions in greenhouse gas emissions. Such programs should be consistent with commitments given to industry in the *2000 LNG Action Agenda*. They should give both industry and government greater certainty about greenhouse outcomes and allow governments to commit to 'no disadvantage' for early movers in greenhouse emission abatement. The mechanisms or processes should be designed to encourage industry to employ new approaches, both technical and commercial, which result in reduced emissions.

(d): A national medium to long term technology strategy for the development and adoption of commercially viable low emission or greenhouse mitigation technologies is a critical element of the approach industry proposes. Such a strategy should take account of research and development activities being pursued by Australian operating companies in a global context. Research funded by industry and government might include:

- geosequestration of carbon dioxide (underway via CO2CRC);
- development of distributed energy technologies based on gas and also the development of technologies to allow their effective incorporation into the national grid;
- use of high efficiency combined cycle turbines;
- developing efficient end-use gas based technologies (e.g. gas fueled air conditioning);

- further development of fuel cell technology;
- implementing outcomes of the national hydrogen study;
- research into more efficient and cost effective pipeline construction technologies, gas processing and industrial processes; and
- testing by industry of the commercial practicality of developing electricity generation based on hot dry rocks, which depend on petroleum industry related technology.

APPEA would argue that Australia should not seek to be the world leader in all of these areas. Rather, it should pursue a series of specific international bilateral and multilateral technology agreements where there are discernible benefits to all parties. Government needs to be careful to avoid trying to "pick winners" and should instead concentrate on setting the right policy framework to facilitate scientific and technological innovation and eliminate barriers to the adoption of suitable, commercially viable technologies. Research and development into abatement technologies should be encouraged through funding and fiscal incentives and supported through policy. The pursuit of global corporate partnerships potentially offers benefits in this regard (for example, to allow Australian researchers to tap into the development of components for hybrid cars or fuel cell technology).

Longer Term Policy Principles

APPEA believes that immediate and medium term responses should be flexible, least cost and consistent with development in the longer term of policies and measures which:

- will ensure efficient and effective market operations nationally and globally; and
- maintain the international competitiveness of trade exposed industries.

ATTACHMENT 2: AUSTRALIAN GOVERNMENT REPORT: *AUSTRALIAN LIQUEFIED NATURAL GAS (LNG) – CLEAN ENERGY FOR A SECURE FUTURE, JUNE 2008*

Australian Government
Department of Resources, Energy and Tourism

AUSTRALIAN LIQUEFIED NATURAL GAS (LNG) – CLEAN ENERGY FOR A SECURE FUTURE

Contents

Foreword by the Australian Minister for Resources, Energy and Tourism

The technical, economic and environmental advantages of liquefied natural gas (LNG) have made it a global fuel of choice. Abundant gas resources and an excellent record as a safe and secure supplier make Australia a preferred provider of natural gas to the Asia-Pacific region. Further, the Australian LNG industry has proven itself to be one of the most socially and environmentally responsible industries in the world.

Global trade in LNG is increasing. Over the next 20 years, the industry can expect existing buyers to significantly increase their consumption and strong growth in markets such as China and India. In recent years, Australia's credentials as a competitive and reliable supplier have been reinforced through long-term deals secured in the Asia-Pacific region by Australian LNG producers. In turn, this will facilitate further sales, allowing Australia to achieve a greater share of the global LNG market.

As global demand for LNG increases, Australia's abundant gas resources and excellent record as an LNG supplier will serve us well in providing safe, secure and clean energy on an internationally competitive basis.

The Australian, Western Australian and Northern Territory Governments, and the industry, share a vision for a strong, internationally competitive LNG industry. Australia's demonstrated technological expertise and track record for safe LNG delivery is reinforced by a stable operating environment that encourages investment.

The Australian LNG industry has the potential to attract up to A$60 billion in new project investment over the next 10 years, providing significant, long-term benefits from employment, regional development and exports.

This publication outlines the structure, performance and growth prospects of the Australian LNG industry. I look forward to working closely with all involved to see this potential realised.

The Hon Martin Ferguson AM MP

Minister for Resources and Energy
Minister for Tourism

Overview

Liquefied natural gas (LNG) is widely recognised as a clean, safe and convenient form of energy, which can be readily supplied to distant markets. Global LNG trade expanded more than fivefold over the past two decades to reach 7.45 trillion cubic feet (Tcf) in 2006, comprising over 7 per cent of global gas consumption.[1]

Gas now accounts for one quarter of the world's primary energy consumption. In 2006, world natural gas consumption reached 100.6 Tcf, equivalent to over 2,055 million tonnes of LNG. The demand growth of natural gas is outstripping all other fossil fuels with global demand projected by the International Energy Agency (IEA) to grow to 169.4 Tcf per annum by 2030.

LNG will play a major role in power generation and industrial development in the Asia-Pacific region over the coming decades with strong demand growth expected in China, Korea, Taiwan, India, the west coast of the United States and Mexico. Globally, new LNG production capacity will be required with the estimated shortfall between existing supply and future demand likely to be around 26 million tonnes per annum (mtpa) by 2010 and 82 mtpa by 2015.

To date, the bulk of LNG trade has been conducted on the basis of long-term contracts. As the diversity of suppliers and consumers has grown, so too has the use of the spot market for trades. While spot sales have offered increased flexibility in procurement, the tight supply and demand situation has recently produced spot prices well in excess of long-term contract terms. As more LNG projects come on stream, it is expected that liquidity will return to the spot market and it will take a more prominent role in LNG trade.

Australia has a well-deserved reputation as a reliable, secure and competitive supplier of LNG, as evidenced by the delivery of over 2,250 shipments to Japan since 1989. Australian LNG competes in a global market with exports from Indonesia, Malaysia, Algeria, Qatar, Trinidad and Tobago, Nigeria, Brunei, Oman and the United Arab Emirates.

With a stable political environment, robust economy and abundant gas reserves, Australia will play an increasingly important role in meeting the world's burgeoning need for natural gas.

Key Statistics

- Australia produced around 1.4 per cent of the world's natural gas in 2006, and is the third largest LNG exporter in the Asia Pacific region, exporting 15.2 million tonnes of LNG in 2007 worth over A$5.2 billion.
- Australia's reserves of natural gas were estimated at 153 Tcf as at 1 January 2006.[2]
- Australia's LNG supply capacity has doubled from 2003 to reach 15.6 mtpa following the completion of the Darwin LNG plant in February 2006.
- With the commissioning of a fifth production train at the North West Shelf and the completion of the Pluto LNG Project, capacity will reach 25 mtpa by the end of 2010.
- The IEA estimates that Australian LNG supply capacity could increase to over 60 mtpa by 2015, if currently planned projects proceed.

1 BP Statistical Review of World Energy, June 2007

2 Geoscience Australia, 2006

What is LNG?

LNG is natural gas, primarily methane, which has been cooled to its liquid state at minus 161°C. Liquefying natural gas reduces the volume it occupies by more than 600 times, making it a practical size for storage and transportation in specifically designed and built tankers. It is transported to dedicated LNG receiving terminals which have the capacity to store and re-gasify the LNG for supply to markets. LNG (the liquid itself) is not flammable or explosive.

Australia's Natural Gas Resources

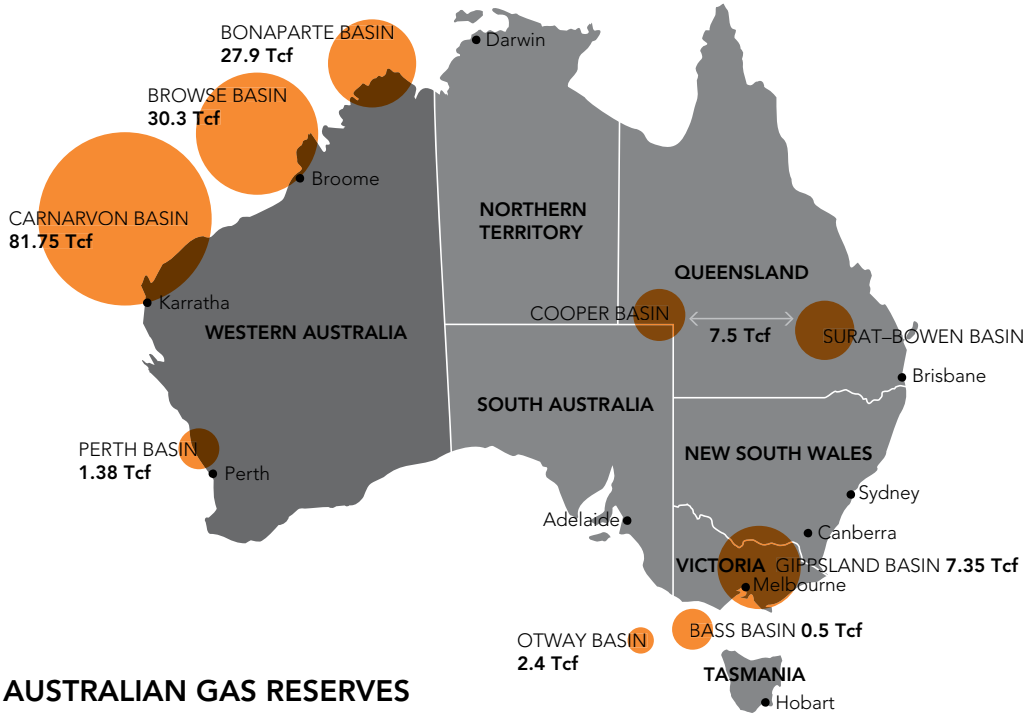
Australia has substantial natural gas resources with reserves estimated at over 150 Tcf, which is equivalent to more than 100 years of production at current rates.

Australia's natural gas consumption is approximately 1 Tcf per annum. Most of Australia's domestic demand is located in the south and east, whereas more than 90 per cent of the natural gas reserves lie in large offshore basins off the coast of Western Australia. The country's principal natural gas producing areas are the Carnarvon Basin, off the north-west coast of Western Australia; the Gippsland Basin, off the coast of Victoria; the onshore Cooper Basin, in the north-east of South Australia; onshore Surat-Bowen Basin in Queensland; and Bayu-Undan in the Joint Petroleum Development Area between the Northern Territory and Timor-Leste.

Natural gas production in Australia has increased steadily over the past two decades to reach over 1.4 Tcf, equivalent to 28 million tonnes of LNG, in 2006. This represents an average annual growth in gas production of around 6.5 per cent since 1980.[3]

Australia currently has two LNG export hubs, the North West Shelf Project (11.9 mtpa) and the Darwin LNG plant (3.7 mtpa) which supply approximately seven per cent of world LNG trade and 10 per cent of the Asia-Pacific market, with LNG exports in 2006 valued at over A$5 billion. Australia exports over 30 per cent of its natural gas production in the form of LNG, mostly to Japan under long-term contracts. LNG is also exported to South Korea under a mid-term contract and spot sales have been made to Spain, Turkey, India and the USA. In August 2002, the Chinese Government signed a 25-year supply agreement with the North West Shelf Venture to supply 3.3 mtpa to the Guangdong Province, the first shipment of which was delivered in May 2006.

3 BP Statistical Review of World Energy, June 2007



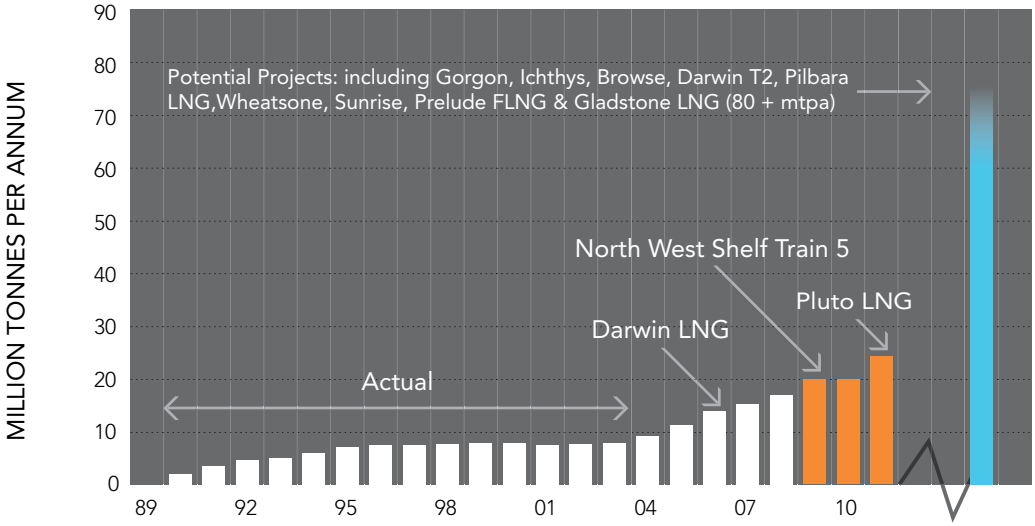
AUSTRALIAN GAS RESERVES

Australia has a strong gas reserves base with significant potential for further gas discoveries. Australia will continue to develop its reputation as a reliable and competitive exporter of energy with a proven track record in building large resource projects.

Planned and Potential LNG Projects

There are currently two LNG projects under construction in Australia the fifth train of the North West Shelf Project and Pluto LNG. A number of other projects are under consideration including the Greater Gorgon, Wheatstone, Greater Sunrise, Gladstone LNG, Prelude, Browse and the Pilbara LNG Project.

Based on IEA projections, Australia will become the world's third largest LNG exporter early next decade, behind Qatar and Nigeria. If all planned projects proceed, annual exports could exceed 80 mtpa (3.9 Tcf), almost four times the current capacity.



North West Shelf

The North West Shelf Project, located near Dampier in Western Australia is a A$20 billion investment, operated by Woodside Energy. The North West Shelf Project reached a production capacity of 11.9 million tonnes of LNG in 2005 following the completion of the fourth production train. A 4.4 mtpa fifth train will be operational from late 2008. At over 16 mtpa, the North West Shelf Project will contain one of the largest plants in the world.

The North West Shelf offshore facilities include two of the world's largest gas production platforms: North Rankin A and Goodwyn A, located 135 kilometres from the onshore operations. The extensive onshore processing facility incorporates gas processing plants, five LNG trains, storage facilities and load-out jetties to produce a wide inventory of gas and liquid products.

The North West Shelf began LNG production in 1989. The venture has since delivered over 2,200 cargoes to markets including Japan, Korea and China. In 2003, the partners finalised a mid-term contract to supply 0.5 mtpa of LNG to South Korea for 7 years. In 2006, the North West Shelf Venture started supplying the Guangdong province LNG terminal as part of its 25-year contract to supply 3.3 mtpa, worth up to A$25 billion over the life of the contract.

The North West Shelf Venture has two development projects underway to extend the life of the North West Shelf – the Angel development and North Rankin 2 project. The development of the A$1.6 billion Angel gas and condensate field will result in a third offshore platform to tie in to North Rankin and three new production wells. The North Rankin 2 project will include a new platform and modifications to the process modules on the existing North Rankin A platform to create one interconnected facility. The project will recover the remaining low-pressure gas and extend the life of the North Rankin and Perseus gas fields to 2035. The North West Shelf Venture has taken a final investment decision for the development, approving a total investment of A$5 billion. The project start up is expected in 2013.

Bayu-Undan

Bayu-Undan is a major gas and condensate field in the Timor Sea, located approximately 500 kilometres northwest of Darwin in the Northern Territory. It is situated in the Joint Petroleum Development Area, which is an area of shared jurisdiction between Timor-Leste and Australia established by the Timor Sea Treaty.

The field was discovered in 1995, and has expected reserves of 4 Tcf of gas and 550 million barrels of condensate. The Bayu-Undan project, operated by ConocoPhillips, has two development phases – a liquids phase and a gas phase. Production of liquids commenced in April 2004. The gas phase involves piping the gas to a site near Darwin, where it is processed into LNG for export. The plant has a 3.7 mtpa capacity and started exporting LNG in February 2006.

The project has contracts in place to export over 3 mtpa of LNG to the Tokyo Electric Power Company and the Tokyo Gas Company for 17 years from 2006. It is expected to generate some, A$5 billion of revenue for Timor-Leste and about $500 million for Australia over a 20-year field life.

Pluto

In July 2007, Woodside announced that it would proceed with its 90 per cent owned Pluto LNG Project at a cost of A$12 billion. The project will use gas from the Pluto and Xena gas fields located 190 kilometres off the coast of Western Australia and 90 kilometres south-west of the North West Shelf Goodwyn Platform. The fields contain in excess of 5 Tcf of gas.

The initial LNG train currently under construction (on Burrup Peninsula connected by 180 kilometres pipeline to a platform in 85 metres of water) will produce 4.3 mtpa, with first exports expected in late 2010. A long-term sales agreement was signed in August 2007 to supply Japan's Kansai Electric with 2 mtpa and Tokyo Gas with 1.75 mtpa for 15 years.

Greater Gorgon

The gas fields in the Greater Gorgon region are located approximately 100 kilometres south-west of the North West Shelf and about 200 kilometres offshore from Western Australia. Gas resources in the Greater Gorgon region are significant, with more than 40 Tcf identified.

The initial development is likely to involve three 5 mtpa LNG trains on Barrow Island, sourcing gas from the Gorgon region and the more distant Jansz field. LNG production is currently scheduled to commence sometime after 2013. Initial plans to export gas from the Greater Gorgon fields include targeting markets on the west coast of North America and in North Asia. Supply agreements have been announced with Japan, China, Mexico and India. The project is a joint venture with Chevron (operator) owning 50 per cent, ExxonMobil 25 per cent and Shell 25 per cent.

A key component of the Gorgon development is the underground sequestration of carbon dioxide. The project received Australian Government approval, under strict environmental conditions, in October 2007 to establish a processing facility on Barrow Island.

Wheatstone LNG

In March 2008, Chevron announced plans to develop a new LNG Project based on its 100 per cent owned Wheatstone discovery. The proposal includes at least one 5 mtpa LNG train, with capacity to expand, located on the northwest coast of mainland Australia. The Wheatstone field was discovered in 2004 and has an estimated 4.5 Tcf of gas reserves. Front-end engineering and design is expected to commence in 2009.

Browse Gas

The Browse Gas Project comprises the very large and remote gas fields of Torosa, Brecknock and Calliance, located in the Browse basin 750 kilometres northeast of the North West Shelf fields. Reserves are estimated at 20.5 Tcf. Development options under consideration include the construction of offshore facilities connected by pipeline to an onshore LNG plant located on the Kimberley coast. The Browse Gas Project, operated by Woodside Energy (joint venture BP, BHP Billiton, Chevron and Shell), could be in production from 2013. Woodside has announced agreements with PetroChina and CPC of Taiwan to supply 2-3 mtpa over 15-20 years, primarily from the Browse Project. The final investment decision is expected in 2010.

Ichthys LNG

The INPEX-operated Ichthys gas field, also located in the Browse Basin, lies over 200 kilometres off the Kimberley coastline in Western Australia. The field contains an estimated 12.8 Tcf of gas and over 527 million barrels of condensate.

INPEX and its joint venture partner Total E&P (24 per cent) are investigating a number of development options, including building an LNG plant on the Maret Islands in Western Australia or piping the gas to a plant in Darwin. The plant would initially produce 7.2 mtpa, with first exports expected in 2012 with plans to supply the Japanese market.

Pilbara LNG

The Scarborough gas field, operated by ExxonMobil, is located 300 kilometres offshore from Exmouth in Western Australia. Gas was first discovered at this site in 1979. Reserves of about 7 Tcf have been identified.

In September 2004, BHP Billiton, which owns 50 per cent of Scarborough, selected a site for a proposed LNG plant in the Pilbara region, approximately 4.5 kilometres southwest of Onslow in Western Australia as part of the company's pre-feasibility study into the development of the Scarborough resource. Drilling continued in 2007 and environmental and technical studies are providing valuable data for development plans and assessment.

Greater Sunrise

The Sunrise and Troubador gas fields, known jointly as the Greater Sunrise field, are located offshore in the Bonaparte Basin, 350 kilometres north-west of Darwin. Some parts of the Greater Sunrise field extend into the eastern area of the Joint Petroleum Development Area shared between Australia and Timor-Leste. The Greater Sunrise field contains an estimated 300 million barrels of condensate and 8.4 Tcf of gas.

Consistent with the terms of the Timor Sea Treaty, an International Unitisation Agreement (IUA) for the Greater Sunrise petroleum field was signed by both countries on 6 March 2003. The International Unitisation Agreement provides a financial framework and international legal basis for the joint development of the Greater Sunrise field.

On 12 January 2006, the Certain Maritime Arrangements in the Timor Sea (CMATS) treaty was signed by Timor-Leste and Australia. By signing this treaty, Timor-Leste and Australia have agreed to a moratorium on boundary issues for 50 years.

Following ratification in both countries' parliaments, the IUA and CMATS entered into force on 23 February 2007. Subsequently the operator, Woodside Energy, has mobilised a project team to assess development options for the Greater Sunrise field.

Gladstone LNG and Coal Seam Methane

Five separate LNG projects for the east coast of Australia have been announced since July 2007, which would see coal seam methane (CSM) gas from Queensland's Surat and Bowen Basins utilised as an LNG feedstock and exported.

In July 2007, Santos announced a proposal to construct a A$7 billion LNG facility at Gladstone in Queensland. The project is for a single 3-4 mtpa train. A final investment decision is expected in 2009, with first exports anticipated in 2014. The project has been given major project status from the Queensland State Government.

In early 2008, Queensland Gas announced an alliance with BG Group to build a 3-4 mtpa LNG plant on the Queensland coast. A final investment decision is expected in 2010, with first LNG in 2013.

Three smaller projects have also been announced. Sunshine Gas, following a pre-feasibility study, signed a heads of agreement with Sojitz Corporation to jointly develop a 0.5 mtpa LNG plant at Gladstone. LNG International has also announced plans to build a 1.4 mtpa LNG plant with the final investment decision expected by the end of 2008, first LNG could be as early as 2011. The Canadian company LNG Impel have announced plans for a 0.7-1.3 mtpa plant costed at up to A$5 billion.

More generally, CSM is now an important component of the eastern states gas market. Production increased by 41 per cent and 2P reserves increased by 49 per cent to approximately 7.5 Tcf over the 12 months to May 2008. Current CSM production and reserves are largely in Queensland although production is rapidly growing in NSW. It is expected that both production and reserves in both these states will continue to increase at a high rate for the next 3-5 years. CSM production accounted for 17.3 per cent of all gas production in the eastern Australia in 2007 and is rising steadily.

Exploration is underway in South Australia and Tasmania with potential also in Western Australia and to a lesser extent in the Northern Territory. The brown coals of Victoria appear to hold little economic potential for direct gas production in the short to medium term.

Government Support

Under Australian and international law, rights to petroleum are owned or held by governments but assigned to private interests. Australian governments neither undertake petroleum projects nor engage in commercial petroleum exploration or development.

The continued development of the LNG industry and securing new export markets is a high priority for the Australian Government.

Market Studies

The Department of Resources, Energy and Tourism and its predecessors commissioned a number of market studies over recent years to support LNG market development. Recent studies include:

- Natural Gas in India: Prospects for LNG Imports 2007
- Natural Gas in Taiwan: Prospects for LNG 2006
- The Asia Pacific LNG Market: Issues and Outlook 2004
- LNG in Korea: Opportunities for Growth 2003
- Natural Gas in Eastern China: The Role of LNG 2003

Petroleum Regulation (Exploration and Development)

Australia's recognised advantages as a supplier of LNG include its stable political environment and low sovereign risk. A legislative regime backed up by a strong, independent legal system provides for orderly exploration and development of Australia's petroleum resources in offshore areas under Commonwealth jurisdiction.

Offshore petroleum operations beyond coastal waters are governed by Commonwealth legislation known as the *Petroleum (Submerged Lands) Act 1967* (PSLA). The PSLA has been rewritten to simplify the presentation of the legislation after more than 40 years of operation and amendments. This will improve its user friendliness and reduce compliance and administrative costs, without changing any major policies or the current management regime. The rewritten Act, the *Offshore Petroleum Act 2006*, and related Acts will come into effect during 2008, and the PSLA will be repealed.

It sets out a basic framework of rights, entitlements and responsibilities for governments and industry. The legislation allows for five types of title to be granted to companies:

- exploration permits;
- retention leases;
- production licences;
- pipeline licences; and
- infrastructure licences.

Administration of the legislative and regulatory regime is managed under cooperative arrangements between the Commonwealth and the states/Northern Territory, with oversight by the Ministerial Council for Minerals and Petroleum Resources.

Foreign Investment in LNG Projects in Australia

The Australian LNG industry has benefited from high levels of overseas investment. The Australian Government fully supports foreign investment in Australian LNG projects, provided that it satisfies the general foreign investment policy guidelines. Australia's foreign investment policy and broader policies, such as those relating to taxation, are designed to encourage investment and development, while at the same time, benefit the Australian community and investors alike. However, commercial agreements over the level and terms for foreign investment in any LNG project are matters for the commercial parties.

Petroleum and Geoscience Information

There is continuing high potential for further large discoveries of oil and gas in Australia. Offshore exploration only began in earnest in the 1960s and Australia remains under-explored.

Explorers in Australia have access to major geoscientific datasets, which provide a sound basis for delineating prospective areas and defining targets for testing. These include government-generated geoscientific maps, datasets, digital databases and company reports of previous exploration.

The Australian Government, through Geoscience Australia, each of the states and the Northern Territory, have a range of highly-developed datasets which are publicly available. These typically include petroleum occurrences, resources, geological features and tenement boundaries. A high proportion of the information is available in digital form and via the Internet.

Royalties and Petroleum Resource Rent Tax

Petroleum production projects operating in Australia are subject to a resource charge, which aims to provide the Australian community with a fair and reasonable return from the development of non-renewable petroleum resources.

Australia's fiscal arrangements are among the more competitive petroleum taxation regimes applied worldwide and provide a community return commensurate with the petroleum industry's assessment of Australia's prospectivity.


I N G I

Petroleum Resource Rent Tax

The Australian Government applies the Petroleum Resource Rent Tax (PRRT) to petroleum projects in Australia's offshore areas beyond coastal waters. The only exceptions are the North West Shelf Project area and the Joint Petroleum Development Area, the latter situated between Australian and Timor-Leste where other arrangements apply.

PRRT is a profit-based tax which is applied at a rate of 40 per cent to a petroleum project's net income (less exploration and general project expenditure) and is a deductible expense for company tax purposes.

The Australian Government announced amendments as part of the 2007-08 Budget aimed at improving the operation of the PRRT. These include:

1. a functional currency rule, enabling a PRRT taxpayer to calculate its PRRT liability in a foreign currency;
2. deductibility of 'black hole' exploration expenditure, ensuring all exploration expenditure is deductible for PRRT purposes; and
3. external petroleum provisions, which will remove inconsistencies where a petroleum project processes petroleum sourced from another petroleum project for a tolling fee and the two projects overlap.

These measures are expected to commence in 2008.

Royalties

Where the PRRT does not apply, petroleum royalties are collected by Australian state and territory governments on all petroleum production which occurs within their jurisdictional boundaries. This includes onshore production and any territorial sea production occurring within three nautical miles from the continental shoreline. The rate of royalty is normally set at 10 per cent of the net well-head value of the petroleum produced. Commonwealth petroleum royalties also apply to production from the North West Shelf Project area in Australia's offshore region, at a rate of 10-12.5 per cent of the well-head value.

LNG Safety and Security

LNG is not flammable or explosive in liquid form. When LNG is warmed up and turned back into natural gas it is flammable within a very limited range. If the mixture of natural gas with air contains less than 5 per cent natural gas, it cannot burn because it is too lean. If the mixture of natural gas with air contains more than 15 per cent natural gas, it cannot burn because it is too rich. LNG has been safely handled for many years. New technology has facilitated further measures to ensure safety both onshore and offshore. Australia has been supplying LNG since 1989 and has an enviable record for safety and reliability. Over 2,200 shipments have been dispatched without incident.

National Offshore Petroleum Safety Authority

The National Offshore Petroleum Safety Authority began operations on 1 January 2005. The Safety Authority covers Commonwealth and State waters and is accountable to Commonwealth, State and Northern Territory ministers.

The Authority aims to improve safety across the offshore petroleum industry and deliver best practice safety regulation for Australia.

Australia's Safety Regime

Australia's offshore petroleum industry operates under a safety case regime. A safety case is a sophisticated, comprehensive and integrated risk management system in which operators accept responsibility for the ongoing management of safety. The regulator's key functions are to promote safety and health, and to inspect workplaces in the industry. Safety cases are central to this and form the rules by which the safe operation of the facility is governed.

Australia's Maritime Security

From 2004, the Australian Government implemented a series of initiatives to further strengthen offshore maritime security. Key initiatives included amendments to the *Maritime Transport Security Act 2003* to include offshore facilities and the establishment of the Border Protection Command.

Under the *Maritime Transport and Offshore Facilities Security Act 2003* offshore oil and gas facilities are required to have security plans based on a security risk assessment similar to those required by port facilities and ships. The Border Protection Command was established on 31 March 2005 to link Australian Defence Force capabilities with existing civil maritime surveillance and regulatory roles that are undertaken or coordinated by the Australian Customs Service. The underlying principle to these initiatives is that the Australian Government has direct responsibility for counter-terrorism prevention, interdiction and response in all offshore areas in Australia.