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Interim Report, Issues Paper 4, and Emissions Trading Scheme Discussion Paper

The Energy Supply Association of Australia (esaa) welcomes the opportunity to provide comment and feedback to the Garnaut Climate Change Review (the Review), as it progresses towards a draft and final report to the Commonwealth, State and Territory Governments of Australia.

esaa is the peak industry body for the stationary energy sector in Australia and represents the policy positions of the Chief Executives of over 40 electricity and downstream natural gas businesses. These businesses own and operate some \$110 billion in assets, employ over 40,000 people and contribute \$14.5 billion dollars directly to the nation's Gross Domestic Product. esaa is fuel and technology neutral, and represents businesses that have investments across a wide range of fossil fuel and renewable generation technologies.

esaa's primary purpose is to advocate policy development that will ensure that Australia enjoys the benefits of a safe, secure, reliable, sustainable and competitively priced electricity and natural gas supply. In this context the esaa has long called for the introduction of an efficient national emissions trading scheme (ETS) as the primary mechanism for achieving greenhouse gas emission reductions at least cost to the Australian economy. A well designed ETS will promote a reliable and sustainable energy supply system that in the long term delivers low carbon intensity electricity and gas supplies for Australia.

As noted in esaa's initial submission to the Review,¹ the Association welcomes the emergence of a national policy consensus around the need for a single national ETS, and the important role that the Review will play in developing a comprehensive national greenhouse response. The broad terms of reference for the Review will allow it to contribute greatly to the design of an optimal national greenhouse policy response through a comprehensive review of the likely impacts of climate change on Australia, the costs and benefits of various International and Australian responses, the role Australia can play in the development of effective international response, and development of comprehensive recommendations for medium and long term policy options that will produce the best possible outcomes for Australia.²

¹ Dated January 10, http://www.esaa.com.au/greenhouse_papers_submissions.html

² Review terms of reference : <http://www.garnautreview.org.au/CA25734E0016A131/pages/about>

This submission focuses on the issues raised by the Review that are of direct and significant relevance to the energy supply sector, which are primarily contained in the *Emissions Trading Scheme Discussion Paper* (the ETS Discussion Paper), and to a lesser degree the *Research and Development: Low Emissions Energy Technologies Issues Paper 4* (Issues Paper 4) and the *Interim Report to the Commonwealth, State and Territory Governments of Australia* (the Interim Report).

The development of this submission, and the analysis of the issues identified by the Review, has been guided by the Association's principles that a well designed ETS should be effective and efficient, promoting efficient investment and achieving abatement at least cost in the medium to long term, and ensure an equitable sharing of the burden (the full esaa ETS design principles are included as Attachment A).

In reference to the Association's principles, esaa supports many of the guiding principles and features described by the Review for an Australian ETS, although further work is required to refine many details and facilitate a smooth transition to a carbon constrained energy supply system. In particular we support the focus on simplicity in design, and the recognition of the need for strong independent institutions and governance arrangements to support long term policy stability and ensure the long term credibility of the scheme.

However, the exploration of the transitional issues for the electricity market is not commensurate with the significant structural adjustment that will be required in an economically substantial infrastructure industry. The final report would benefit from further detailed analysis of transitional risks and measures, to ensure that the energy supply industry and associated national energy markets are capable of responding efficiently and effectively to a substantial policy-induced price shock. It is important to note that the introduction of a price for carbon does not remove an economic rent associated with traditional industry protection, but instead prices a commodity previously unpriced, and that the benefit of carbon-free pricing has always been passed on to end consumers rather than appropriated by the intermediary energy supply industry.

esaa also believes that the Review would benefit from further consideration of the economic merits and importance of providing equitable compensation to investors in Australia's electricity markets who are disproportionately impacted by this fundamental change in Government policy. Compensation will achieve an equitable sharing of the costs of mitigation. Compensation will also enhance the credibility of the proposed new national ETS and related institutions and targets. The cost of transitioning to a carbon constrained economy will be reduced if capital risk premiums are not inflated by undue sovereign risk, and the overall cost of abatement over time will be reduced accordingly.

TARGETS AND TIMING

For an ETS to be effective in capping emissions, and efficient in achieving least cost outcomes for the economy, a firm national target needs to be established for the medium to long term period.

esaa recognises that the setting of targets requires a balance between the objectives of providing certainty for industry, and flexibility for government to respond to changes in scientific knowledge and international political events. In recognition of

this the Association has endorsed the compromise recommended in the National Emissions Trading Taskforce (NETT) and the former Prime Minister's Task Group on Emissions Trading (PMTG) reports, whereby Government would establish a long term target to 2050 and then set firm annual targets for 10 years and establish gateways for a further 10 years.

The ETS Discussion Paper's proposed approach to setting trajectories whereby Government would establish a limited set of well defined trajectories, with clear criteria under which Government would change trajectory in response to international developments has advantages. It would provide an increased level of transparency and certainty around the risk of Government changing targets in the future, provided that the minimum notice period for change is sufficient.

However, the proposed requirement that Government set firm targets for effectively only five years appears excessively short, and no analysis of the costs and benefits of reducing the period of firm targets from the ten years recommended by the NETT and PMTG reports to five years is provided. It would be expected that the spot price for permits would adjust almost instantly to reflect the present value of the increased future scarcity associated with an announced change in trajectory. Increasing the notice period would reduce the magnitude of this price shock, contributing to the stability of the market, and improve the ability for businesses to plan for and manage their carbon risks.

The ETS Discussion Paper's identification of the significance of the trajectory, rather than a singular target for a particular year is welcome. It is important that, in analysing the optimal abatement trajectory to maximise the benefits to Australia, that the Review considers the ambitious coverage of the ETS, the adjustment costs and the availability of key technologies to meet different trajectories that ultimately achieve similar environmental outcomes.

The ETS Discussion Paper is the first offering in the Australian policy debate to propose a permit lending feature for an ETS. esaa understands that the lending proposition is differentiated from earlier concepts of borrowing, on the grounds that the permit loaned would be of a current vintage, rather than a future vintage so that net lending would need to be covered by purchase of international permits. esaa presumes the benefit of such a feature is by virtue of not further tightening future constraints on emissions and jeopardising the emission cap. However, it is suggested that the lending concept be further explored, especially its potential impact on the ETS Discussion Paper's design principles of scarcity and credibility.

It is important to note with respect to the transition to an ETS, that the market will have significantly less than five years notice to adjust to what will probably be the most significant change in carbon prices during the life of the ETS – from effectively zero in 2008 to an as yet inestimable figure in 2010. For the energy supply markets, this supply-side price shock will be magnified by the imminent large scale expansion of the Mandatory Renewable Energy Target (MRET). The Review should undertake detailed modelling and analysis of the likely transitional impacts associated with this shock and the measures required to ensure the energy supply industry and markets have the maximum resilience to transition smoothly.

COVERAGE

esaa agrees with the Review that the ETS coverage should be as broad as possible, covering as far as practical all significant greenhouse gas emitting sectors, sources and sinks, including the stationary energy, transport, industry and agriculture sectors.

Sectors to be covered by an ETS should at a minimum include those that are greenhouse intensive, have an obvious point of obligation and can measure their greenhouse gas emissions to an appropriate level of accuracy. esaa supports the ETS Discussion Paper's proposed sector coverage of stationary energy, industrial processes, fugitives, transport and waste from scheme outset.

It is recognised that at present there are challenges in some sectors on point of obligation and accuracy of emissions measurement, particularly the agricultural and forestry sectors. Where sectors are excluded from an ETS for practical reasons, esaa believes alternative policies to constrain emissions, equivalent to participation in the ETS, should be imposed. As the ETS Discussion Paper suggests, at some later point in time, ideally these two sectors will also become covered by the ETS.

PERMIT ALLOCATION, FORWARD MARKETS AND TRANSITIONAL ARRANGEMENTS

Auctioning permits

esaa supports the principle that the ongoing allocation of permits should be undertaken by auction at a national level based on a single national target. However, esaa believes that economically efficient transitional assistance should be provided to existing greenhouse gas emitting entities to compensate for the disproportionate loss of economic value suffered due to the introduction of the ETS, and that this assistance is optimally provided in the form of a free allocation of permits. The case for compensation is summarised in Attachment B.

Auctions of current vintage, and future vintage permits should be held at regular intervals to minimise impacts on cash flow and working capital, allowing liable parties to purchase permits at auction progressively through the compliance year. In designing the auctioning schedule, a liquid forward market should be created through the release of a quantum of future dated permits or equivalent means.

It is unclear why the ETS Discussion Paper has proposed that permits should be auctioned prior to their year of eligible acquittal as there appears to be no specific rationale for this.

Free permit allocation

esaa supports the allocation method recommended by the NETT and the PMTG reports, that is a mix of auctioning, and free allocation of permits to compensate investors for disproportionate loss of asset value from the introduction of an ETS. A once-off free allocation to compensate for disproportionate loss of asset value will not result in a wealth transfer to generators; rather it would only reduce the quantum of wealth being taken from those generators. The allocation would not reduce either the effectiveness or efficiency of the ETS, or the simplicity of the overall scheme design.

Free permit allocation is a matter of equity and investor certainty. To date, investors in the Australian energy sector have been given strong indications that should an ETS be introduced, existing investments would be equitably treated. Withdrawal from this widely-accepted principle has significant implications not only on current industry participants, but also future investment. Future investment decisions by industry will attract a higher risk premium to the potential for changes in policy directions, unless there is evidence that appropriate treatment of affected assets was undertaken to assist in the step change.

It should be noted in this context, that Australia's National Electricity Market (NEM) has some similarities with the ETS, in that the market did not evolve naturally as a result of bilateral commercial transactions but was created as a mandatory gross pool market by Government fiat. In the mandatory gross pool there is no capacity for product differentiation, or ability for generators to unilaterally price externalities, such as carbon, to adapt ahead of Government regulation. Although greenhouse policy uncertainty has been, and is increasingly becoming, an impediment to efficient investment, the NEM has successfully continued to deliver reliable low cost electricity supply for Australia in part because investors have accepted assurances that existing investors will be equitably treated on the introduction of an ETS.

The transitional treatment methodology should also acknowledge the investments made in good faith in the existing environmental market-based mechanisms that are likely to be transitioned across to the national ETS pricing signal. Programs such as MRET, the NSW Greenhouse Gas Reduction Scheme (GGAS) and the Queensland Gas Electricity Scheme (GEC Scheme) are all precursors to a national ETS, and sound treatment of their discontinuation will provide a strong signal for investment in the new national ETS.

The ETS Discussion Paper's discussion on the European Union ETS and its grandfathering of permits is irrelevant to the Australian context, and it underrates and detracts from the significant bodies of work already undertaken by both the NETT and PMTG - neither of which proposed anything remotely resembling the EU ETS allocation approach. Both reports explicitly recognised that many existing electricity generators would be able to pass through a significant proportion of the carbon price and that compensation assessments would need to account for this.

Additionally, esaa believes that the ETS Discussion Paper significantly understates the status of the NETT and PMTG reports and the weight that rational investors in Australia's energy markets must necessarily have placed on the principles enunciated in them. Throughout the past decade every level of Australian Government has clearly indicated that existing investors would be equitably treated if and when an ETS was introduced in Australia.

On 17 July 2007, the Australian Government released *Australia's Climate Change Policy: our economy, our environment, our future*, endorsing the key design features of the emissions trading scheme set out in the report of the Prime Ministerial Task Group on Emissions Trading. The then Prime Minister had also officially nominated 3 June 2007 as the date before which existing assets would be eligible for compensation.

The NETT's August 2006 *Discussion Paper: Possible Design for a National Greenhouse Gas Emissions Trading Scheme* was a comprehensive policy discussion paper produced under the auspices of the First Ministers of all Australian States and Territories, and provided the momentum for the Council for the Australian Federation's February 2007 announcement to implement a national ETS by 2010.

Further, the NETT report was itself constrained by 10 key design principles adopted by First Ministers in December 2004, which included permit allocation on the basis of a mix between administratively allocated permits and auctioned permits.

Trade Exposed Emissions Intensive Industries (TEEIs)

The ETS Discussion Paper's design principle of simplicity is endorsed, as it increases understanding and certainty. However, the proposed treatment of TEEIs is a noteworthy compromise of the simplicity principle. esaa acknowledges that TEEIs may have a sound case at least in the interim for compensation or subsidies, and on this basis the argument of simplicity for dismissing any free permit allocation to other sectors to compensate for disproportionate economic loss is not credible.

COMPLIANCE PENALTY

The ETS Discussion Paper proposes a punitive penalty that is additional to the obligation to acquit an adequate number of permits. The severity of such arrangements is reduced by the proposition of allowing permit lending from the independent authority.

However, as the Review also highlights, the setting of both long term and interim targets is a very complex policy issue, with many national and international factors affecting the likely costs and benefits. In setting the targets and trajectories, policy makers must essentially determine the optimal level of cost to impose on the economy through a carbon price over time. This task is complicated by the highly uncertain level of costs and benefits associated with specific targets.

It is in this context that esaa agrees with the recommendations of both the NETT and PMTG reports that the maximum economic cost of the scheme should be capped by a set compliance penalty or emissions fee, without a make good requirement, to act as a price ceiling. Capping the maximum cost of the scheme simplifies the analysis of costs and benefits, and can add to the credibility of the scheme by reducing the possibility of dramatic target changes by a successive Government resulting in an unacceptably high cost to the Australian community.

The penalty should be set at a value that is not punitive, but exceeds the expected marginal cost of abatement. Rather than imposing an additional make good requirement, the revenue raised by the penalty could be utilised by government to source or facilitate additional abatement. The recent International Monetary Fund *World Economic Outlook*³ highlighted the benefits of a compliance penalty to be a stand alone measure, to cap the economic cost of an ETS. If the penalty is set an appropriate level above the marginal cost of abatement, there is no risk of it acting like a tax and undermining the ETS market unless the assumptions underlying the target turn out to be fundamentally wrong.

As a commodity that is legislatively created, the ETS is not a natural market, and particularly in the early stages of operation, the ETS may suffer from considerable instability. The ETS Discussion Paper proposes that permit lending would assist in minimising volatility in the permit market. esaa shares the Review's faith that markets will adjust to allocate resources with the maximum economic efficiency. But it does not share the Review's faith that society would, or should, tolerate a situation where

³ World Economic Outlook, Chapter 4 "Climate Change and the Global Economy"
<http://www.imf.org/external/pubs/ft/weo/2008/01/pdf/c4.pdf> April 2008.

the market price of carbon was imposing a cost on the economy that far exceeded the potential benefits from abatement, because the assumptions policy makers used to set the target proved false.

As a new compliance obligation for covered sectors, there is a high likelihood of inadvertent non-compliance in the first years of operation. The imposition of a punitive compliance penalty combined with a make good provision, in the case of inadvertent noncompliance, could result in an undue cost to businesses.

Should the provision of a make good requirement prevail, esaa notes the MRET model for compliance, whereby a penalty is refundable in the instance that liable party does make good on permit acquittal, could be an attractive alternative.

OFFSETS AND LINKAGE

The ETS Discussion Paper's recommendation that unlimited use of domestic offsets be allowed is supported by the Association. So far as agriculture and forestry are not covered sectors in the ETS, in Australia they may play a strong role in providing low-cost abatement to keep the economic costs of the ETS down.

There is considerable concern expressed by the ETS Discussion Paper with regard to the use of other offset credits, in particular Clean Development Mechanism (CDM) derived credits. Conversely both the Interim Report and the ETS Discussion Paper express much enthusiasm for forestry offset credits, including those internationally sourced. It should be noted that such a stance on offsets, particularly international offsets is a divergence from the policy held by the EU ETS. Under the EU ETS, CDM credits are generally recognised and accepted, with the exception of forestry.

The position of the ETS Discussion Paper on a measured approach to linking with other schemes internationally is supported by esaa. Linking the Australian ETS with other international schemes should only be undertaken where Australia is not disadvantaged and where the net effect will be to lower the cost of abatement. Additionally, any international linking or offset use must be acceptable to the international community, given Australia's likely international obligations for emission reductions.

COST TRANSPARENCY

The energy supply markets of Australia are highly competitive and resilient, however numerous impediments to efficiency in the market exist in the supply chain. esaa endorses the ETS Discussion Paper's comment that, for the carbon price to have its intended effect, it will need to flow through to end consumers. As the ETS Discussion Paper further notes, regulatory controls are still in place for retail energy prices for residential consumers in all States (despite many State energy markets being highly competitive). Retail price regulation in competitive energy markets will be less effective than competitive price discovery for providing the most efficient ETS-related adjustments to energy prices.

Beyond regulatory controls on retail electricity tariffs, the NEM has a number of price regulation measures including the Value of Lost Load and the Cumulative Price Threshold which will need to be reviewed in light of the introduction of an ETS. esaa believes the energy supply markets should be allowed to efficiently include the cost of carbon throughout the supply chain, free from regulatory inhibitors.

Allowing efficient cost pass through will stimulate appropriate demand side responses to the carbon price signal. Current energy price related regulatory arrangements in most jurisdictions of Australia are barriers to efficient demand side responses and these should ideally be addressed as part of the national market reforms in tandem with the ETS design and introduction.

INSTITUTIONAL ARRANGEMENTS

The Interim Report and the ETS Discussion Paper highlight the importance of robust institutional arrangements for good governance and efficient operation of the ETS. esaa wholly supports a clear delineation of responsibilities between government as the policy and broad rule maker, and an independent authority to administer and tightly define the rules of the ETS. The ETS Discussion Paper's suggestion that an independent carbon bank could participate in the permit market for the purposes of stabilisation is a function that is not currently conceived or in operation elsewhere. esaa would welcome further exploration of this function, as it could add or detract to the efficiency of the market.

The ETS Discussion Paper's recognition of the risk premium that will be reflected in the market should the institutions that support an ETS be inadequate or lack credibility is welcome. The importance of such arrangements to support an ETS is paramount, and they should be firmly established prior to finalising a commencement date for an ETS.

TAX

The tax implications of an ETS are beginning to receive considerable attention in Australia, from both professional institutions and companies that will ultimately be advising liable entities in the near future. The ETS Discussion Paper identifies that the tax system could be utilised to assist sectors of the community most affected by in the introduction of an ETS.

Earlier this year esaa commissioned an investigative study to address more broadly the tax implications for its members of an ETS, including issues around technology research and permit allocation and acquittal. This study is not yet at a reporting stage. However, it is clear that tax implications of the ETS will need to be addressed by government. The efficiency of the ETS will be compromised if tax implications encourage liable parties to behave in a manner that distorts the permit market. esaa encourages the Review to include in the final report detailed analysis of the potential incentives and distortions associated with the current taxation system and recommend changes to ensure that the tax system does not distort the efficient operation of the ETS.

Issues Paper 4 – Research and Development

Issues Paper 4 correctly identifies that a price signal on carbon alone is not likely to provide the impetus for technology change, particularly in the early years of an ETS. esaa believes that a significant portion of revenue from the ETS should be transparently allocated back to the sector to assist in research, development and deployment of low emission technology.

esaa recognises the challenges in research, development and deployment, particularly the dichotomy of advantages in specialisation and the risks of picking

winners. Australia has a natural comparative advantage in a number of energy sources and specialisation in these fields to date has provided significant benefits to the Australian economy. Conceivably, much of this specialisation should continue, given Australia's unique climatic and geological features.

esaa supports assistance to both incumbent technologies for retrofitting, and stimulation of emerging new technologies that will bring about Australia's next generation of energy supply. As the ETS Discussion Paper identifies, development will need to occur not just in generation technologies, but also in transmission and distribution networks.

Policies to support industry research, development and deployment of new technology need to be assessed with clear reference to the operation of an ETS. Policies that are to operate in tandem to the ETS need to be carefully developed.

Complementary and other measures

The ETS Discussion Paper notes that measures such as MRET are likely to result in compliance with Australia's emission reduction targets at a cost that is higher than otherwise would be. The ETS Discussion Paper also highlights the emerging imposition of energy efficiency targets and the necessity to unambiguously assess and define their implications on the permit market.

esaa strongly supports further definition and exploration of complementary measures to an ETS. It is recognised that, particularly in the earlier years of operation of an ETS, market failures and barriers may still exist that prevent technology adoption or electricity consumption behaviour change. However, the recent emergence of numerous uncoordinated state-based policies that seek to address such market failures is concerning, as they pre-empt the analysis and recommendations of the Review, and until policy on an ETS is firmed, there is no basis to determine if such measures are efficiently complementary.

The Interim Report's call for policy-makers to "eschew short-term responses" is sound counsel, and esaa encourages the Review to include detailed analysis and recommendations in the final report to define an optimal, nationally consistent, set of complementary measures required to support the ETS in achieving least cost abatement over time.

Concluding remarks

It is recognised that on many of the design features of an efficient ETS, the Review and esaa share common views. esaa looks forward to further opportunity to comment on the Review propositions, particularly as they become quantitatively informed by the modelling exercises currently being undertaken.

Yours sincerely



Brad Page
Chief Executive Officer



esaa Emissions Trading Scheme Design Principles

The esaa Emissions Trading Scheme Design Principles are guided by the overarching principles of:

- **Effectiveness and efficiency (particularly dynamic efficiency)** - the scheme should promote efficient investment in, and use of, energy services to achieve the desired reliability, security of supply and abatement at least cost over the medium to long term.
- **Equity** - affected parties should not be treated unfairly relative to others.

Targets and timing

A single long term, economy-wide, emissions abatement target should be established for 2050. An abatement trajectory should be fixed by setting firm short-term targets of 10 years duration and medium-term indicative targets for an additional 10 years.

The short-term targets should be set as soon as practical at a level that provides for a manageable economic transition and is informed by the availability of emissions reductions across covered sectors.

Coverage

The ETS should cover all significant greenhouse gas emitting sectors, sources and sinks, including the stationary energy, transport, industry and agriculture sectors.

Any excluded sectors should face emissions constraints at least equal to the covered sectors through alternative policies.

Permit allocation, forward markets and transitional arrangements

Allocation of permits should be undertaken by auction at a national level based on a single national target, after the provision of transitional assistance to disproportionately impacted industries. Auctions should be held at regular intervals to minimise impacts on cash flow.

A liquid forward market should be created through the allocation of future dated permits or equivalent means.

Transitional assistance should be provided to existing greenhouse gas emitting entities to compensate for any disproportionate loss of economic value suffered due to the introduction of the ETS. Economically efficient compensation should be calculated on an asset by asset basis, by an independent regulator using a transparent methodology, on commencement of the ETS.

Investments and/or contracts made in good faith under existing greenhouse abatement schemes to be transitioned into the ETS, or ended early, should be fully compensated.

Any additional compensation or subsidies that may be provided to trade exposed energy intensive sectors should minimise distortions to the ETS market and impacts on other industries.

Compliance penalty

The penalty should be set at a level that is above the expected marginal cost of abatement, but is not punitive. The penalty should be informed by, and no lower than, the implied cost of carbon of any pre-existing state based schemes to be transitioned into the national ETS.

An ETS should not contain a 'make good' provision in addition to financial penalties.

Offsets and linkage

To the extent that new low-cost abatement or sequestration opportunities arise (either domestically or internationally) these should be incorporated into the ETS.

Provided Australia is not disadvantaged by its participation, an Australian ETS should be linked (in some form) to complementary international schemes to lower the cost of abatement.

Cost transparency

Energy markets should be allowed to efficiently include the cost of carbon throughout the supply chain, free from regulatory inhibitors such as price controls. To the extent that assistance is required to ameliorate the impact of the ETS on affected consumer groups, this should be funded and provided directly by Government.

Institutional arrangements

The ETS should be administered by a regulator that is independent of the policy and rule making authorities. The ETS should be supported by efficient measurement and reporting arrangements, and an efficient exchange to facilitate low-cost, transparent transactions.

Research and development

A significant proportion of revenues generated under the ETS should be invested in emissions abatement activities including research, development and deployment of low emissions energy technologies.

Tax

To maximise efficiency in emissions abatement, the tax system should not introduce distortions between purchasing permits and other options.

Taxation implications should be considered in the calculation and provision of transitional assistance.



Emissions Trading and the Case for Transitional Assistance to Compensate Disproportionately Impacted Assets

Background

- To address the climate change issue, Australia's greenhouse gas emissions are to be reduced to 60% below 2000 levels by 2050.
- The Federal Government has decided to implement a national emissions trading scheme by 2010 as the centrepiece measure for tackling greenhouse gas emissions.
- This will be supplemented by a range of other measures, including a requirement for an additional 45,000 GWh of electricity to be sourced from renewable generators by 2020. This represents approximately 45% of the anticipated load growth over the period and will attract a subsidy in the form of a tradeable renewable energy certificate as most eligible technologies are regarded as being commercially uncompetitive in the medium term, even with a carbon price delivered through an emissions trading scheme.
- An economy-wide emissions target at 2020 will be established by the end of 2008, as will the Emissions Trading Scheme (ETS) design features.

Greenhouse, the Stationary Energy Sector and the Electricity Industry

- Australia's stationary energy sector is responsible for about 50% of the nation's greenhouse gas emissions. Of this, the electricity sector currently accounts for approximately 70% of stationary energy emissions or 35% of the country's total greenhouse gas emissions.
- 85% of Australia's electricity production is from coal-fired thermal power plants. When the use of natural gas for electricity generation is included, over 90% of Australia's electricity generation is from fossil fuel sources.
- Australia currently has 32 coal-fired power stations with an age range of 3 months to 50 years and an average age of 26 years. The approximate capital value of these generators exceeds \$50 billion.
- Australia's generation fleet is owned by government, private companies and publicly-listed companies. The vast majority of base-load generators have Australian citizens as part owners either via government (State taxpayers as owners), retail investors (so-called 'Mums and Dads') and superannuation funds (either through direct holdings or via fund managers). Significant private capital is at risk.

- The stationary energy sector is an obvious inclusion in an ETS, not only as a significant emitter, but also due to its point-source nature and ease of data capture. However, as a sector it has one of the longest investment horizons, and as such will respond most effectively to new constraints if appropriate timeframes are imposed.

Australia's Electricity Markets

- Australia's interconnected east coast electricity system operates under a real-time, energy only, mandatory gross pool wholesale electricity market, known as the National Electricity Market (NEM).
- The WA South West Interconnected System also operates under a competitive market framework though it differs from the NEM in that it relies on bilateral contracts rather than a compulsory gross pool.
- The markets are designed to preference least-cost generation. Under current arrangements, coal-fired base-load plants are consistently the lowest cost generators and can therefore expect to be utilised on a consistent basis with limited changes in required output. This is the role that they are designed to fulfil.
- Most coal-fired generators are multi-unit plants. That is, they are comprised of multiple boiler and turbine 'units' which can be operated independently of one another. For example, the rated capacity of a power station may be 2000 MW, comprising 4 x 500 MW individual units. Conceivably, such a power station could be operated as a 500 MW, 1000 MW, 1500 MW or 2000 MW power station.
- Coal-fired base-load plants face substantial fixed costs regardless of the number of units they are operating, while marginal costs tend to be relatively low. They are typically high capital cost, low operating cost facilities. They rely on volume trade to make adequate returns on invested capital.
- Coal-fired base-load plants are also relatively inflexible – that is they are not designed to substantially alter output quickly and they are unable to start from 'cold' quickly. The starting procedure for a coal-fired generation unit can take between 24 and 48 hours until full output is achieved.

The Potential Impact of Carbon Constraints and Emissions Trading

- An emissions trading scheme will apply a cost to the emission of each tonne of carbon. Existing black coal generators emit between 0.8 and 1.0 tonne of CO₂ per MWh while brown coal generators emit between 1.1 and 1.5 tonnes of CO₂ per MWh.
- At a price per tonne of CO₂ that is likely to be required to achieve even moderate greenhouse gas reductions in the next decade, the cost to produce electricity by many coal-fired generators will increase by as much as 100%.

- In a competitive market, these generators will find that they are displaced to some extent by now cheaper and less emissive plants.
- Given the high fixed costs of these coal-fired generators and the inflexibility of the units, they are unlikely to be able to operate at the high availability rates that they have in the past and will face some degree of revenue reduction, perhaps even a shortfall against costs. Their options, given the lack of available technology to significantly alter their greenhouse gas emissions, are limited but revolve around reducing the number of units in operation to achieve better revenue-cost outcomes.
- The reduced revenue adequacy and the limitation on deployment of available capacity inevitably means that the capital valuation of the enterprise is negatively impacted, reducing shareholder wealth.

Transitional Assistance to compensate Affected Generators is Warranted

- The implementation of a carbon constraint and an ETS will impact the Australian economy widely. It is an external shock introduced by a government policy decision that has immediate and widespread impact.
- To the extent that large parts of the Australian economy are similarly impacted, there is no prima facie case for economic support. However, where the impact is negative and significantly exceeds the general effect on the economy there is a prima facie case to be examined.
- Many electricity generators (and especially coal-fired generators) are likely to be disproportionately impacted by the application of a carbon constraint and price when compared to the rest of the economy. The extent to which this occurs is dependent on each individual generation facility's emission intensity, the size of the carbon constraint and the cost per tonne of carbon emitted.
- In these circumstances, generators that are disproportionately impacted should receive transitional assistance that compensates on grounds of economic equity and sovereign risk because:
 - **Shareholders invested in these enterprises in good faith** and with a reasonable expectation that governments would not impose measures that substantially removed value or 'stranded' their investment without economic support for the consequences;

- **Generator investment decisions were taken when climate change policy was far less certain.** Indeed, even now it is not possible to determine with any certainty the extent of the likely constraint, its timing or the likely cost of carbon. Had investors succumbed to the uncertainty and not proceeded to invest in generators - both existing and new - then Australia would not have had sufficient energy to power its economy. Once made, generation investment decisions are long lived and vulnerable should government policy changes fail to acknowledge their impacts.
- **The implications of not recognising economic loss go further than just compromising existing investments.** Future investment decisions by industry will attract a higher risk premium to the potential for changes in policy directions, unless there is evidence that appropriate treatment of affected assets was undertaken to assist in the step change.
- **Consumers rather than generators have benefitted from not facing a carbon constraint or price** in the past. To the extent that the cost of the carbon emission externality was not faced by generators, the beneficiaries have been the consumers of electricity through less than full costs of production being incurred and a highly competitive market restricting margins and keeping prices low. Generators have not earned additional income as a result of the lack of a price on carbon emissions.
- **Current generation companies can play a big role in moving to a low carbon future but only if they are viable.** Stranding existing assets as a result of implementing a carbon constraint and price limits the opportunity for many generation companies to deploy their considerable skills and resources to a low carbon future. Indeed for many companies, loan covenants and other fiduciary conditions applied by their banks and lenders may not be able to be met should the eventual carbon price and constraint tip the company's financial position over the brink. This effectively compromises their access to equity and debt capital to invest in new low carbon generation technology.