



147 Collins Street  
Melbourne Vic 3000

GPO Box 2291U  
Melbourne Vic 3001  
Australia

ABN: 51 194 660 183  
Telephone: +61 3 9288 5555  
Facsimile: +61 3 9288 6666  
DX: 30824 Melbourne  
www.kpmg.com.au

Garnaut Review Secretariat  
The Garnaut Climate Change Review  
Level 2, 1 Treasury Place  
Melbourne 3002 VICTORIA

Our ref Garnaut Submission - Covering  
Letter

21 February 2008

Dear Secretariat

**KPMG Submission in relation to Issues Paper 2  
- Financial Services for Managing Risk: Climate Change and Carbon Trading**

Thank you for the opportunity to provide a submission to the Garnaut Climate Change Review in relation to Issues Paper 2 – Financial Services for Managing Risk: Climate Change and Carbon Trading (Issues Paper 2). KPMG looks forward to contributing to the shape and form of climate change policy and mechanisms across the Australian landscape.

KPMG's submission responds briefly to the key questions set out in the Issues Paper 2. A more fulsome response, with further detail and discussion, particularly in relation to the development of an effective carbon trading market and the proposed ETS, will be provided in KPMG's response to the Garnaut Climate Change Review's request for submissions in relation to the recently released Interim Report, and soon to be released, Emissions Trading Scheme discussion paper.

Issues Paper 2 primarily addresses three key areas:

- Insurance
- Building effective carbon trading markets
- Positioning Australia as a regional hub in the Asia Pacific carbon markets.

KPMG expresses interest in continuing to play a key role in the development of workable and positive outcomes in relation to the Australian Government's climate change policy. We also expressly seek further involvement and will continue to offer our support in discussions and further consultations held in relation to the Garnaut Review on Climate Change.

Yours sincerely

Rachael Phelan  
Partner, Climate Change

*Enclosures:*

Submission by KPMG to The Garnaut Climate Change Review in relation to Issues Paper 2 - Financial Services for Managing Risk: Climate Change and Carbon Trading



**Submission by KPMG to  
The Garnaut Climate Change Review  
in relation to**

Issues Paper 2 – Financial Services for Managing  
Risk: Climate Change and Carbon Trading

February 2008  
This report contains 30 pages



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# 1 Introduction

The impacts of climate change have been, and will continue to be, felt within the global financial services industry. The ability of the financial sector to respond to the myriad of risks associated with climate change will not only be critical to the industry's economic sustainability and long-term viability, but will also determine the nature of Australia's role within the Asia Pacific region.

The Garnaut Climate Change Review, Issues Paper 2, Financial Services for Managing Risk: Climate Change and Carbon Trading ("Issues Paper 2"), primarily addresses three key areas:

- Insurance
- Building effective carbon trading markets
- Positioning Australia as a regional hub in the Asia Pacific carbon markets.

## **Insurance**

Recent global weather events have shown that the implications for the insurance industry are already evident. The increased frequency and severity of extreme weather conditions, such as storm and floods have seen large-scale losses – both physically and financially. Combining the incidence of climate change-related loss with the move of many to "at-risk" areas such as low lying coastal regions will also determine affordability and take-up of insurance. The Government and insurance sectors will need to be mindful of this when determining the degree of risk they are willing to take within the industry's future landscape and the extent to which that risk is shared.

## **Building effective carbon trading markets**

The development and implementation of an Emissions Trading Scheme (ETS) within Australia poses many challenges. With a planned start date of 2010, the Government is aware that it will need to move quickly. Fortunately, Australia is able to use the lessons learnt from the operation of schemes in other jurisdictions (ie. EU Emissions Trading Scheme (EU ETS)) to design a system with strong governance, reporting and disclosure frameworks that ensure transparency across the market.

Integral to the design of the Australian ETS (AETS) will be the permit allocation methodology adopted. In a financial market context, the robustness of forward carbon markets will depend on the degree and extent of restrictions on the use of permits. The issues surrounding allocation methodology, and the key issues raised by the Issues Paper 2, are further captured within this submission.

## **Positioning Australia as a regional hub in the Asia Pacific carbon markets**

The Rudd Government has indicated that it seeks to position Australia as a regional carbon hub within Asia Pacific. Australia is already well-positioned to do so with strong energy trading and financial markets and robust legal systems. If it is to achieve this objective, the Government will need to act quickly.

Australia's climate change response has the advantage of drawing on the lessons learnt from international experience such as climate change related insurance events in the United States (US) and the establishment of the EU ETS. The challenge will be applying these lessons to the unique issues faced by the Australian markets.

KPMG has a unique perspective in responding to the Issues Paper 2. KPMG works with our clients to assist them in responding to the challenges and opportunities arising from climate change and sustainability through our dedicated climate change and sustainability practices. KPMG is in a position to assist our clients to make informed strategic decisions in the face of climate change, through the provision of advisory services and as an assurance provider. This is further supported by a global network of professionals throughout KPMG International, including KPMG's global sustainability and climate change services network.

KPMG is proactively responding to climate change and has already taken steps to monitor and report our greenhouse gas (GHG) data through a transparent and robust process through the Department of Climate Change's Greenhouse Friendly™ program.

We have a clear interest, on behalf of our clients and in our own commitments in the area of climate change, to ensure practicable and workable measures are put in place in relation to Australian climate change policy.

KPMG's submission responds briefly to the key questions set out in the Issues Paper 2. A more fulsome response with further detail and discussion, particularly in relation to the development of an effective carbon trading market and the proposed ETS, will be provided in KPMG's response to the Garnaut Climate Change Review's request for submissions in relation the Interim Report and, the soon to be released Emissions Trading Scheme discussion paper.

## 2 Specific responses

### 2.1 The Issues

**Does the insurance industry have the capacity to provide adequate and affordable insurance products in a future of climate change?**

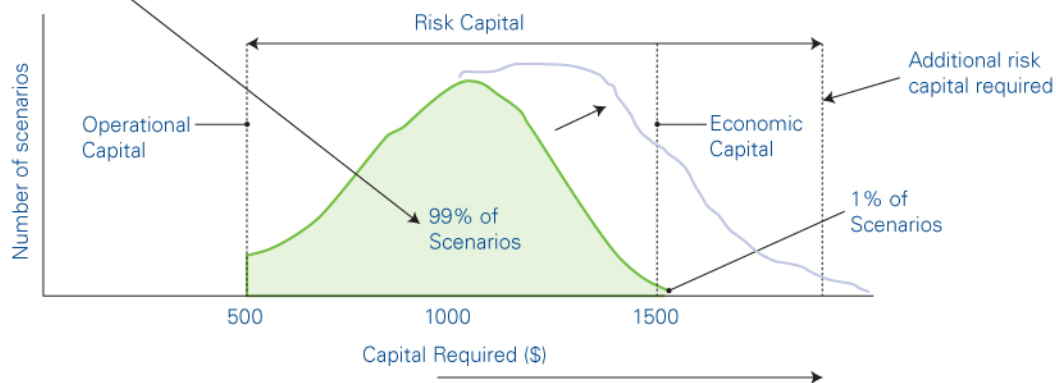
At present, there is no evidence to suggest that the insurance industry does not have sufficient capacity to be able to offer adequate and affordable products in a future of climate change, assuming the impacts of climate change can be contained in terms of minimal temperature increases. The current actions of insurers would suggest that they support this view.

In the future, however, if annual insured losses are set to substantially increase due to climate change, there will be a corresponding increase in the need for risk-based capital to cover this rise in losses – in other words, the modelled 99% of scenarios become increasingly more expensive. This additional capital will be held at a cost which will ultimately be passed onto customers where possible, if the return on capital is not to fall or alternatively insurers will reduce coverage. Customers may be unwilling to take on such policies at high prices due to issues of affordability. Where this additional cost of capital is not transferred to customer, shareholders will most likely see a corresponding decline in their return on equity and return on capital which may lessen the attractiveness of insurance companies from a shareholder perspective. There is always the tension between the capital that shareholders feel its company should hold versus the capital that regulators consider should be held in the interest of policyholders.

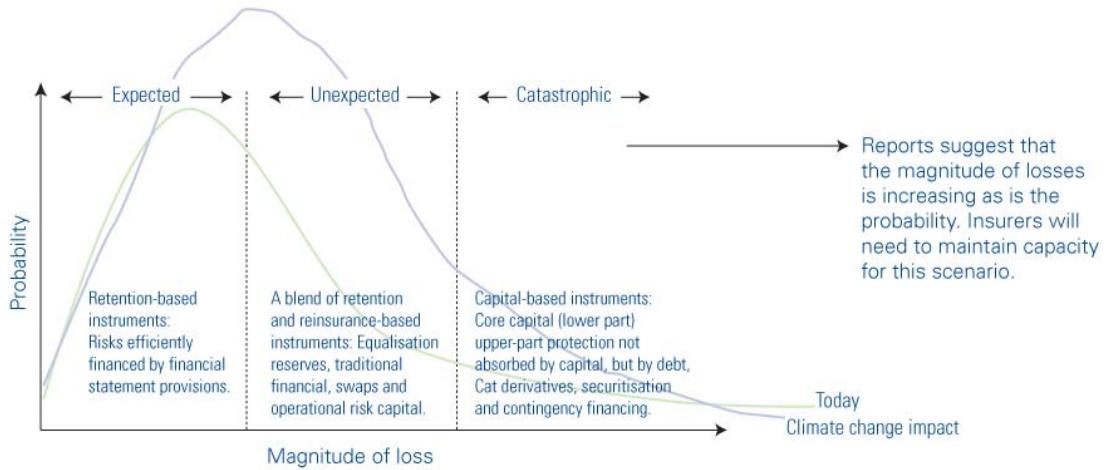
The two diagrams below show what may happen due to climate change in the near future and the capital requirements.

**Financial risks of climate change**

Modelled scenarios become more costly



Source: *Financial Risks for Climate Change, Technical Annexes, Prepared by Climate Risk Management Ltd for the Association of British Insurers, June 2005*



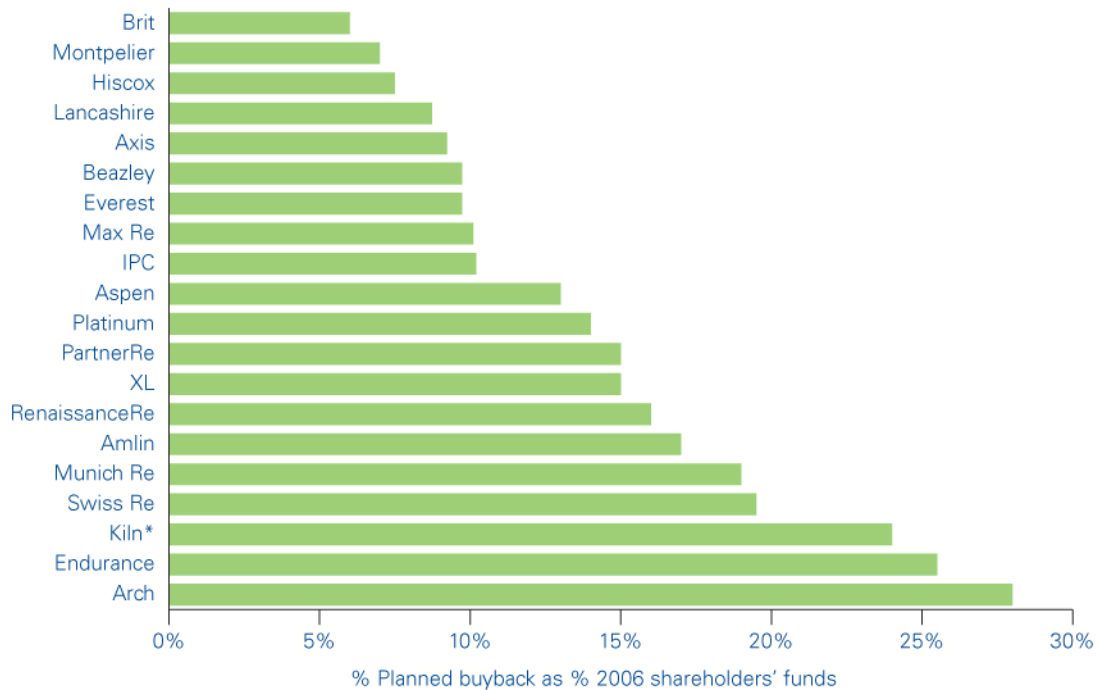
Therefore, one can assume that if insurers are to provide adequate and affordable insurance products for the future, then more capital will be required. However, current research suggests that the insurance industry may well be over-capitalised. The table below from Credit Swiss, shows the European capital position from Credit Suisse which highlights a substantial increase in the amount of capital held over the years 2004-2006. Not all of this capital will be held as risk capital.

Insurance Sector Capital Position – Main Indices			
€ millions	2004	2005	2006
Capital available (a)	239,436	290,426	319,370
Capital required (b)	188,418	204,424	220,778
Margin over required capital (a-b)	51,017	86,002	98,592
Coverage (a/b)	127%	142%	145%
Tier 1 coverage	83%	97%	>100%
Equity/solvency capital	65%	68%	73%
Cash flow	28,760	37,965	45,340

Source: Global Insurance and Asset Management: M&A Opportunities across the globe, Credit Suisse Global Equity Research, 14 January 2008

Many international insurance companies are looking to reduce their capital holdings further such as the various share buybacks announced recently (see below diagram).

**Global Reinsurance Market Review**



\* Subsequent to the buyback announcement Kiln has reached agreement with Tokio Marine & Nichido Fire Insurance Co on the terms of a recommended cash acquisition for the group and the buyback has been aborted.

Source: *Global Reinsurance Market Review: Changing the Game, Benfield Group Ltd, January 2008*

The international context should be considered in light of the Australian Prudential Regulation Authority’s (APRA’s) current proposed refinements to the general insurance prudential framework in Australia. APRA is proposing significant increases to the capital requirement of authorised general insurers (all things being equal) by increasing capital factors on equity and property investments and reinsurance recoveries from non-APRA authorised insurers (i.e. overseas reinsurers) where the recovery is more than 12 months old. The industry has voiced its concerns. KPMG understands that APRA is of the view that insurers will change their strategy in relation to holding equities and property to counter the increased capital factors and negotiate with non-authorised reinsurers to ensure that appropriate security is held in Australia for reinsurance recoveries thereby negating the need to hold increased capital. The increased capital factors for equity and property are proposed to be effective from 1 July 2008. The industry is currently in discussion with APRA to delay implementation of the proposed changes relating to reinsurance recoveries. Whether the Australian industry experiences an actual increase in capital as a result of the proposed changes, will be evidenced in due course.

The conclusion on the major international insurers actions is that insurers feel that they currently have ample capital to be able to provide insurance products in a future of climate change. How long this view remains will depend on how quickly and dramatically the effects of climate change are felt within the insurance industry.

Insurers need to consider the current demographic trends over the long-term. An increasing number of people living in urbanised areas which provide a concentration of risk with higher exposure values. Additionally, in some countries, there is an increasing trend for individuals to locate themselves along coastal areas, such as Florida where there is a high incidence of natural catastrophes. Therefore, we are seeing the double effect of an increase in concentration in insured values combined with an increase in hazard exposure. There is considerable debate in the US over who should pay in this situation. Some argue that it is the responsibility of the Government and the burden should be placed on the taxpayer, whilst free market economists propose that if individuals wish to live in such areas, then they should be ready to pay an appropriate price for the risk of living in those areas.

In what is still very much an emerging area, it will be necessary for Governments to continue to monitor the position to ensure that, if there is a market failure, it is able to take corrective actions.

### **Are there any market failures associated with the provision of insurance that are specifically related to climate change risk?**

Insurance provides essential benefits to the economy and the community.

Market failures occur due to inefficient markets and the misallocation of goods and services. These situations prevent individuals from achieving their own individual goals and are generally seen as having an adverse effect on society. Governments tend to be increasingly interventionist as the prospect of market failure arises.

In the UK, there was the potential for market failure following the IRA attacks in the early 1990's which lead to a number of insurers contemplating withdrawing from writing property lines in built up areas. The UK Government established Pool Re to overcome this situation. The terrorism part of the property policy is now wholly transferred to Pool Re which allows property insurers to continue to supply the policy and provide cover for terrorism. In Australia we have the Australian Reinsurance Pool Corporation covering terrorism insurance.

With reference to climate change, in a worst case scenario, insurers could start to withdraw certain types of cover as the level of risk increases. This was evident after Hurricane Katrina and the actions of the insurer Allstate. The US Government stepped in to prevent a reduction in the supply of insurance by forcing US insurers to offer household and motor insurance rather than 'cherry pick' the motor insurance customers.

Many countries have already established catastrophe type funds as reinsurance vehicles to prevent market failures. For example, the New York Insurance Department is proposing a rule that would require each property insurer doing business in the State to establish a Catastrophe Reserve Fund to pay for catastrophe losses in New York State. Under current tax and accounting rules, insurers cannot set aside reserves for an event that has not yet occurred, but each year they charge for providing the coverage. The funds to establish and maintain the State's Catastrophe Reserve Fund will come from the profit companies make on the part of the premium charged for catastrophe coverage. The reserves will have a 20-year rolling term. At the end of the term, unused funds from the first year would be considered as income for tax and accounting purposes and the following year's contribution added to the reserve. Insurers' reactions to the proposal have been mixed. Some see it as a good first step in addressing catastrophe-related issues. Others say the plan requires them to tie up capital that could be employed more usefully elsewhere.

Another example is the Caribbean Catastrophe Risk Insurance Facility (CCRIF) which provides catastrophe cover for the region. It is a multi-Government risk pooling mechanism established in 2007. It has recently doubled the cover available and reduced its premium by 10%. The Australian Government may look to establish similar pools for such cyclone events.

The picture across Europe is not uniform as far as State intervention schemes are concerned. For example, in Switzerland the State imposes cover as an extension to a basic contract. In Denmark and the Netherlands, the State pays compensation for loss or damage. In Belgium, Spain, France, Norway, the State intervenes in both ways and in Austria, Czech Republic, Germany, Finland, United Kingdom, Greece, Italy, Poland, Portugal, Sweden there is no State intervention.

The insurance industry has two layers of protection to mitigate against market failure. The existence of a primary insurance and reinsurance market allows for extreme events to be accepted, diversified and covered. However, it is not uncommon for these extreme events to significantly impact the reinsurance market. Following Hurricane Andrew in 1992, eleven reinsurers went into receivership. One could argue that the industry is much better capitalised these days, however, one also needs to bear in mind the rise in modelled loss scenarios to avoid being too complacent about the level of capital held. A recent report by the Group of Thirty (Reinsurance and International Financial Markets) 2006 looked at the possibility of the reinsurance industry causing systemic instability. The report concluded that it was unlikely that such an event could occur with limited adverse effects on the real economy and with reinsurance capacity bouncing back reasonably quickly.

The design of insurance policies will also play a role in avoiding market failures. For example, in the UK, most buildings policies include damage from flooding under their property cover. The provision of this cover under buildings policies avoids the adverse selection leading to ultimate withdrawal of cover. For example, if flood insurance was offered as a standalone cover, the cover would only be bought by those individuals with a high exposure to flooding. Therefore, the cost of the flood insurance would

have to rise dramatically to be able to provide cover for the claims. The UK Government has been warned by insurers that this situation cannot continue without the improvement in flood defences.

A final point, is the current structure of the insurance industry in particular countries. Some countries impose pricing criteria which restricts the ability of insurance companies to charge an appropriate technical price for a policy. This is quite common in the US and is argued as one of the main reasons why insurance companies are not able to price accurately for catastrophes. It also creates a situation where the public is falsely led into believing they are paying an accurate price for their insurance. If these limits are removed, there is the potential for significant discord as the public gets charged the accurate price for the cover.

### **What are the key insurance gaps relating to climate change?**

Four key insurance gaps relating to climate change are flood, storm surge, bushfire and land-use risk.

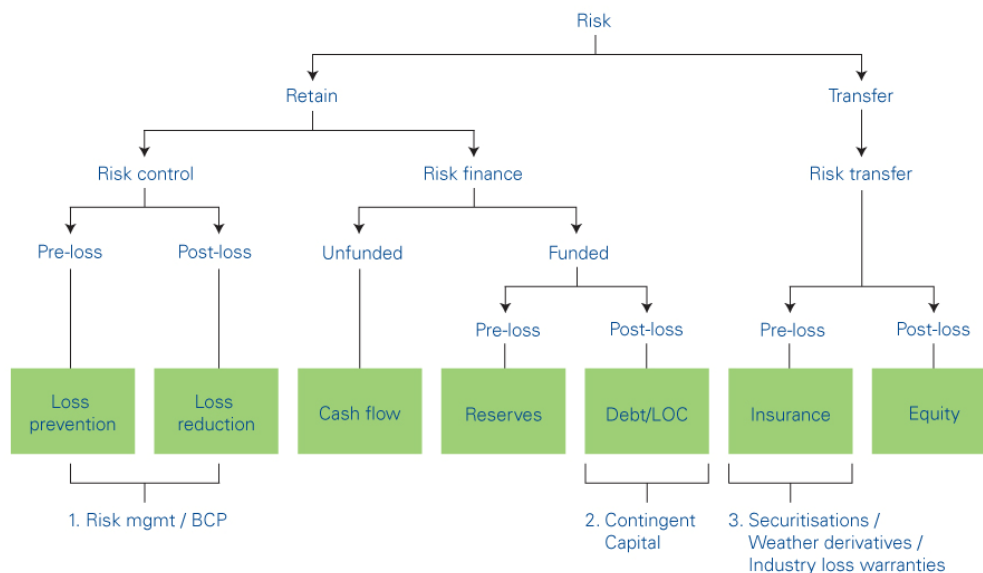
Flood is a significant economic and community issue and remains unresolved from an Australian perspective. It is possible that hundreds of thousands of homes face potential risks over the next 20 to 30 years as a result of rising sea levels and cyclonic activity.

Rising sea levels will impact on the ability of insurers to provide storm surge cover to coastal areas. Property insurance covers damage to buildings but not to land. If land becomes unusable due to flood or rising sea levels, there is currently no insurance protection.

### **What kinds of innovative products could the insurance industry provide to deal with increased weather related risk associated with climate change?**

Ceres produced a report in October 2007 titled '*From Risk to Opportunity: 2007 Insurer responses to climate change*'. (The report is available from <http://www.ceres.org>). Global warming and the growing incidence of extreme weather events pose an enormous challenge to the insurance industry. This report focuses on the significant progress made by insurers to develop new products and services.

At the broadest level, insurance companies help firms/customers manage their risks. As the diagram below shows, there are a number of distinct areas where insurance companies can offer their expertise. However, the insurance industry may be seen to have lost out partly to the banking sector in terms of some product development. For example, there is no reason as to why insurance companies could not provide a number of products which are now generally seen as the domain of investment banks. Many derivatives involve financial modelling and analysis which could be performed by insurance companies. However, we are increasingly seeing a convergence between the two sectors.



Source: Punter Alan, 'Course notes Alan Punter CEO, Capital Markets, AON.

Climate change provides the insurance industry with significant opportunities, some of which are highlighted briefly below.

- **Risk management / business continuity planning services**

Indirectly, additional services such as risk management consulting services, establishing early warning systems and designing risk frameworks are currently offered by insurers/brokers looking to broaden their business models beyond the direct provision of insurance.

Since September 11, many firms have focused on the provisions they have in place for a disaster. The insurance industry has a wealth of expertise in this area due to its history of risk mitigation as a way of reducing claims and subsequently premiums.

• **Contingent capital**

Additionally, we may see the rise in the number of contingent capital arrangements in the market place, mainly as a supportive financing tool rather than an insurance product. These provide insurers with a competitive advantage following an event. The table below shows some of the recent contingent capital arrangements for international insurers. A key benefit of contingent capital arrangements is the balance sheet protection that is provided immediately after a catastrophe. Insurance Australia Group (IAG) locally has such a facility in place.

	Amount USDmn	Time period	Type
Endurance	150	3 years	Contingent equity
Hartford	500	10 years	Contingent hybrid debt
Lancashire	50	1 year	Contingent equity
Farmers	500	5 years	Contingent debt
Total	1200		

*Source: Global Reinsurance Market Review: Changing the Game, Benfield Group Ltd, January 2008*

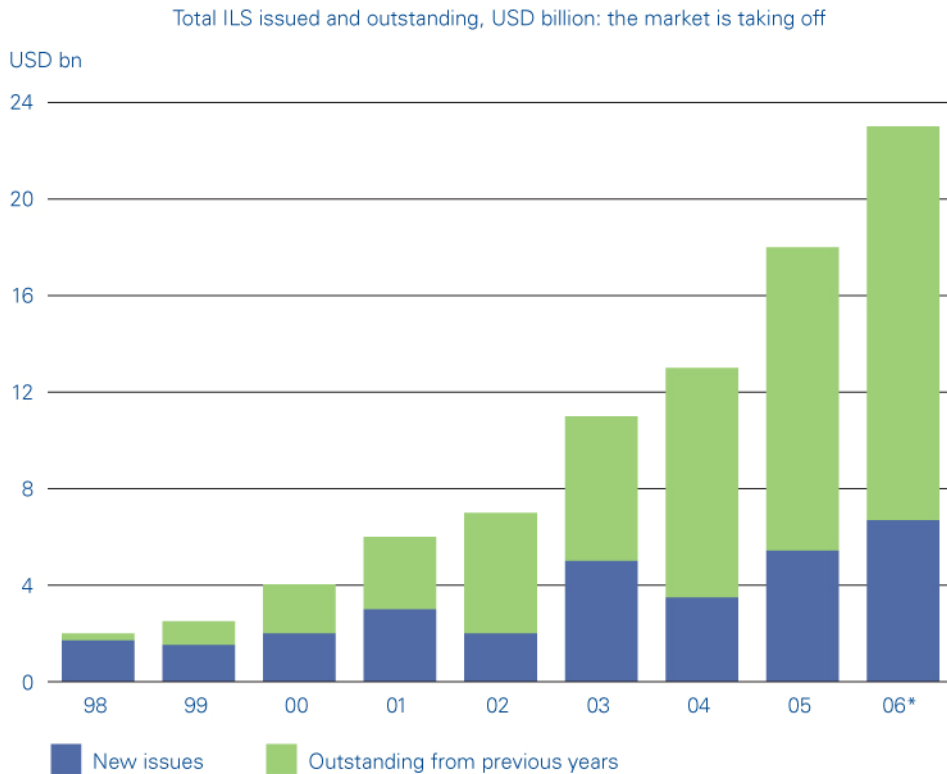
• **Securitisations**

Recent reports suggest that securitisation of insurance risk is likely to increase in the future as frictional costs decrease and investors look for uncorrelated opportunities, subject to the ongoing vagaries of the sub-prime crisis.

Securitisations allow insurers to bundle up risks and transfer them to the capital markets. As the risks are transferred, the insurers are not required to hold regulatory capital against them. By doing this, insurers are able to accept more risk (and hence more premium) but not hold the ultimate risk themselves. Securitisations are becoming increasingly accepted in the market with various types of risk being transferred, including catastrophes.

For example, Allianz have introduced the first ever cat bond to cover floods and Swiss Re has issued a cat bond for French windstorm risks. (Refer to: [www.allianz.com/en/allianz\\_group/press\\_center/news\\_dossiers/risk\\_management/news\\_2007-04-10.html](http://www.allianz.com/en/allianz_group/press_center/news_dossiers/risk_management/news_2007-04-10.html) and [www.businessinsurance.com/cgi-bin/article.pl?article\\_id=23834](http://www.businessinsurance.com/cgi-bin/article.pl?article_id=23834))

Securitisation provides the insurance industry the opportunity to get around the issue of a lack of capital by transferring the risks into the much more substantial capital markets. Climate related risks have been securitised for a number of years now and, as the chart below suggests, there is every reason to expect the trend to continue.



\*data through August 25, 2006

*Source: Ferguson, Roger W, Financial Market Innovations and the Evolving Risk Landscape, Speech to the New York Association for Business Economics, 4 October 2006, by Roger W Ferguson, Jr Head of Financial Services and Member of the Executive Committee, Swiss Re*

- **Weather derivatives**

Weather derivatives are increasingly utilised by existing energy and financial market entities internationally. These instruments allow individuals to hedge against adverse weather conditions and minimise exposure to weather induced market events. For example, farmers may take out insurance against drought or theme parks, against rainy days. Essentially, a baseline figure is estimated and then the policy is designed to pay out on how much that baseline figure is exceeded. A common weather derivative is based on temperatures using heating / cooling degree days (HDD/CDD).

Other examples of weather derivatives include precipitation based, energy demand linked and event specific structures, which have been transacted in both the retail and wholesale sectors of the economy.

As stated earlier, weather derivatives are becoming increasingly more prevalent in Australia as a risk management tool. However, the advent of climate change may dramatically change weather patterns and payout profiles which may in turn increase the risk for weather derivative providers. This will increase premiums and impact the affordability of such products going forward.

- **Industry loss warranties**

Insurance Loss Warranties (ILW) may rise in importance to protect primary insurers from the dangers of an event exceeding a certain threshold. The products available are becoming increasingly diversified beyond single event industry loss triggers with multiple events being linked together.

Furthermore, a secondary market is developing which is providing increased liquidity. New platforms such as the New York Mercantile Exchange (NYMEX) began to trade a number of catastrophe risk futures and options covering US Wind perils based on a daily index compiled by Gallagher Re from Property Claim Services (PCS) data. The Chicago Mercantile Exchange (CME) also began trading a number of US Wind related contracts, based on a parametric hurricane index devised by Carvill (calculated from factors such as wind velocity and radius) which provides a value for settlement immediately following landfall of a hurricane. The Insurance Futures Exchange Services (IFEX) was launched in September 2007 by Deutsche Bank and Climate Exchange plc, and operates through the Chicago Climate Futures Exchange, providing a further platform for the trading of first event US Wind risks based on PCS loss estimates.

ILW are seen as highly attractive to institutional investors as they provide uncorrelated returns thus achieving diversification targets. The framework for ILW's, as with securitisations, is becoming increasingly established with the early issues of standardised contracts, accurate pricing, reliable data and so on being rapidly addressed. Parallels have been drawn with the rise of credit derivatives which grew substantially throughout the early 1980's.

- **New markets**

The rapid emergence of renewable energy and the various technologies required to generate such energy, is providing insurers with a new sub-market requiring the design of new products. Early movers in this field include XL and Swiss Re which have designed a range of products to meet the growing demand.

As with all new markets, the loss data is not complete which makes pricing a difficult task, however, with Governments setting ambitious carbon reduction targets, it is most likely that market will grow substantially.

### **What is the appropriate burden of risk sharing responsibilities between Government, individuals and the insurance industry?**

Essentially, there are three options.

Firstly, where private insurance exists, the costs are shared by the insureds and with risk based pricing, those living in high risk areas pay the higher prices. This in turn encourages risk management practices. However, if the risks become too expensive, individuals may withdraw from the market preferring to self-insure. This scenario is not normally acceptable from a Government perspective. On the other hand, insurers need to monitor their own underwriting criteria to ensure that adverse selection does not occur.

Secondly, Governments may act as the insurer of last resort where the costs are borne by the taxpayer according to the tax regime at the time. There is no reward for risk avoidance or for mitigating against them. For insurance markets with limited capacity, a pooled or Government backed scheme may be the only alternative. However, even in some highly developed markets such as the US, losses can exceed capacity which has led to established pools such as the National Flood Insurance Programme, The Florida Hurricane Catastrophe Fund and more recently the Citizens Property Insurance Corporation which either act as primary insurer or reinsurer.

Thirdly, the risks may be borne 100% by the individual due to no commercial market or Government scheme existing. This requires significant personal capital and significantly reduces entrepreneurial activity.

This key question should be answered between the Government, insurers and trade and customer associations. A key economic benefit of insurance is its role in freeing up individual and corporate capital to enable that capital to achieve better rates of return through new projects. If individuals are required to self-insure, then they will need to maintain substantial capital as a hedge against personal risk. In most cases, individuals will not have sufficient capital available which will lead to increased personal insolvencies and hardship which insurance is designed to avoid.

If the responsibility falls 100% on the Government, the number of commercial organisations will reduce substantially. Higher taxes (above the existing insurance premium amounts) will be required to pay for this 'insurance'. There will be no incentive for individuals to manage risk.

In the UK, this is a key question in relation to flood insurance with some healthy debate between the Environment Agency (EA) and the Association of British Insurers (ABI). The ABI is arguing for much greater spend on flood defences because its members are suffering substantial claims, and this is not being fully listened to by the EA. Flood defence spending has risen but not at the rate desired. If the UK continues to have significant floods, then restrictions in cover may start to apply. There is also a responsibility on local Governments to not permit the building on flood plains without the necessary defences in place. In Australia, the Insurance Council of Australia (ICA)

has had flood insurance on their agenda for years with no visible traction from Government. It is questionable as to how well Australian local Governments are maintaining data on flood areas. It is understood that IAG are developing a nationwide flood mapping tool to identify areas that would be most prone to flooding risks as a result of rising sea levels and cyclonic activities.

The purpose of insurance is to transfer risk away from the individual and share the losses of a few amongst many and therefore, the main burden should remain with the insurance industry itself with ultimate back up from the Government should the picture worsen. A model currently under review in the US is a three-tier model. Tier one sees policies provided by individual insurance companies. Tier two sees individual states or regions providing catastrophe pools to provide reinsurance to insurers operating in those regions. Tier three sees the establishment of a national mega-catastrophe fund for events which breach the limits set in the first two tiers.

#### **Is the insurance industry likely to provide an adequate range of insurance products in the absence of Government intervention?**

There is no evidence to date to indicate the insurance industry has failed to provide an adequate range of products in the absence of Government involvement.

However, if the predictions on climate change are correct and its effects are not contained thereby increasing both the size and frequency of catastrophes – the outcomes may be significant. If events like Hurricane Katrina change from being a 1 in 100 year to a 1 in 20 year event, this needs to be reflected in pricing which the consumer may not be ready for. Additionally, it may then be questionable whether there is sufficient capital in the insurance industry to survive ‘as is’ without some sort of Government relief in terms of the various Government backed pools noted above.

#### **More generally, is there a useful role for Government in providing a mandatory, regulatory insurance against climate change risks, or is the general prudential supervisory role of Government enough?**

Market forces first need to play themselves out and see what the level of climate change is. If Governments start to take the place of the commercial market too soon, it will lead to strong opposition. There is reasonable opposition in the UK to Pool Re due to the fact that it has a very low claims ratio, which is great for the UK populous, but receives considerable annual premiums. If there is an increased chance of a withdrawal of cover or significant market failure, then it may be warranted for Government to step in to prevent this.

Governments should ensure that there is sufficient liquidity and capital in the market. The extent of actual involvement should be restricted to establishing principles and frameworks and only acting as insurer of last resort where the potential for market failure is high.

The Government should continue the general prudential supervisory role that it currently has but should also enhance the resilience of the community by improving building standards to minimise consequential property damage, review planning codes, provide flood mapping, ensure an adequate natural disaster relief framework and reform taxes and charges that are currently a significant impediment to the private uptake of insurance cover.

## 2.2 Building effective carbon trading markets

### **Are there any institutional inhibitors to the emergence of an Australian ETS?**

Australia has a sophisticated financial services sector and associated financial markets infrastructure. Of particular importance is a strong energy and commodities sector which underpins significant investment and participation by financial institutions in a variety of activities ranging from debt and structured finance through to financial markets trading activity.

This activity has led to the development of successful financial markets and service offerings by existing local and international companies such as institutional and investment banks. The existing infrastructure and capabilities to support existing financial, energy and commodity markets are readily able to incorporate new market developments and products that will arise under the proposed AETS.

The market has been anticipating a national emissions trading scheme for some time now and is increasingly looking for certainty around carbon price signals. The risk management culture, infrastructure and governance framework that exist within Australian Financial institutions (support by APRA oversight and regulation) is robust and a strong platform to support an emissions market.

Key to ensuring the success of an AETS will be the management of information and reporting capabilities. The ETS will need to operate with transparency. This in turn drives the need for robust management information systems (MIS) and reporting. Disclosure frameworks will also be required to create market transparency. The provision of timely and accurate information to the public should be based on the verification procedures and reporting regime established by the ETS. A key learning from the EU ETS experience was the need to contain price volatility through the provision of greater transparency and more structured and regular information disclosure.

The elements of verification that need to be developed as part of the ETS design are the scope of verification, verification procedures including inspections and communication of outcomes to eliminate fraud, accreditation of verifiers and treatment of non-compliance.

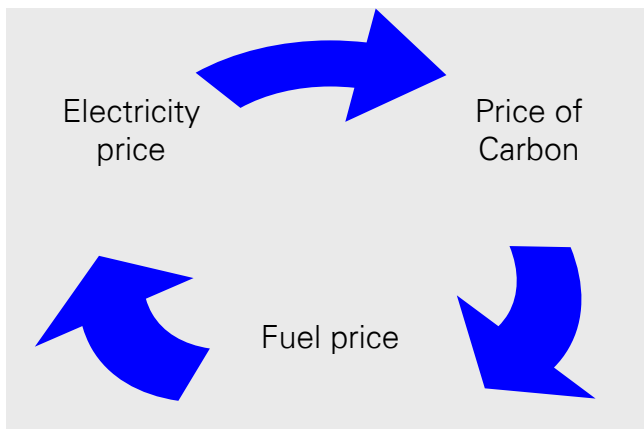
Providing clear direction through a governance, compliance, and enforcement framework for detecting and managing disclosure and problematic base year emission data submissions in conjunction with a robust policy on early action credits may reduce the likelihood of the EU ETS experience occurring within the AETS.

To support the compliance and governance framework, evaluation of the results of the ETS will be critical to its ongoing success. There are no established performance indicators/measures for ETS schemes, so the development of performance management measures, methodologies and frameworks will play an important role in the ETS development.

**Is permit price realisation and discovery best facilitated through the use of auctioning under an ETS?**

Common to all markets is the notion that market forces act to determine the ultimate price and value of underlying assets and derivatives within a market.

These market forces result from the interaction of demand and supply economics associated with input variables for a particular commodity as well as behavioural factors amongst market participants. An example of such interaction is demonstrated in the diagram below:



This diagram attempts to illustrate the interdependent relationship between carbon, fuel and energy prices. These interactions need not be the focus here but to illustrate the fact that the value of carbon is complex and multi-dimensional.

For this reason, it is essential that in the design phase of the ETS, careful consideration is given to the permit allocation approach, with particular focus on the impact of the approach on carbon price outcomes and market dynamics.

The approach to permit allocation will be a contentious issue as it will determine relative 'winners and losers' throughout the economy at the early stages of the ETS and will attract great interest from business and industry. Economic purists suggest that the allocation process adopted should not affect the economy-wide outcome in meeting emissions reduction requirements. However, in practice the allocation

process may well have impacts on perceptions and behaviours of investors and operators in response to the ETS introduction and market development.

Auctions are primarily distribution mechanisms, redistributing a percentage of the revenue created via an ETS from participants to Government. The use of such revenues will directly impact the effectiveness of the auctioning process. Unless these revenues are put back into the carbon market in the form of lower income taxes to businesses impacted by the ETS or used for investment in the development of clean or low-emitting technologies, they in effect become another form of Government tax and an additional cost.

Auctioning allows the Government to obtain economic rent created by the environmental constraints created by the ETS, and to potentially avoid the politics associated with CO<sub>2</sub>-intensive plants generating profits from an environmental constraint – a far cry from a ‘polluters pay principle’.

The various emission allowance options include the allocation of free-permits, auctioning or a combination of the two. In designing an ETS in particular allocation methodologies, Governments may influence the level of potential loss or gain of competitiveness for specific industries.

Consideration may be given to limit auctioning of permits, and in particular the likely behavioural issues that may arise in the market. The mechanics of auctioning needs to be carefully designed and address both the demand and supply side of the economy to enhance liquidity and depth of the market.

Selection of a permit allocation methodology is a key issue as it is the point at which the overall scheme design interacts with the financial position of individual entities or projects. Any allocation methodology presents unique challenges. For example the benchmarking approach requires defining the nature of benchmarks (fuel, technology or product-specific) and ensuring the availability of data, which may require industry consultation.

On the other hand, free allocation of permits to new installations presents potential issues such as reduced incentive for clean technology in the early stages of the ETS.

Using auctioning in combination with recycling of auction revenues to create investment incentives based on creating a more reliable forward curve, and hence clearer price signals should also be considered. The downside is that auctioning could have a negative impact on costs, thereby affecting the competitiveness (profit and market share) of energy-intensive industries. In addition this would open a secondary allocation debate on how to recycle revenues and raise questions on the mechanisms of auctioning.

Whilst some economic literature including Grubbs (pp 7-30, 2006) *Allocation and Competitiveness in the EU ETS: Policy Overview*, argues that auctioning is more efficient than free allocation the use of 100% auctioning can have some undesirable

consequences in Australia. In particular there may be significant adverse impacts to the coal fired electricity generation sector to an extent which is detrimental to the achievement of the ETS' goals.

The ETS will require all electricity generators to obtain permits to offset their carbon emissions. In an efficient market, the additional costs would then largely be passed on to consumers in the form of higher energy prices.

Whilst acknowledging that coal-fired generators have no absolute 'right to be kept whole', we believe an effective ETS ought not lightly compromise cost recovery during a period in which the generator has limited ability to adapt to changed circumstances. We observe that the historic non pricing of the carbon externality has not given rise to a gain to the coal fired generators but has flowed to the community in terms of lower consumer electricity prices and increased economic activity. We further acknowledge the interest of an existing generator in overstating the extent of current costs and in underestimating their capacity for adaptation.

Due to differences in emissions intensity factors, post the introduction of an ETS coal-fired generators will lose some of their main source of competitive advantage, being their lower short run marginal cost (SRMC).

Therefore, in the absence of compensation winners and losers will emerge immediately and four main things are expected to occur:

- The financial position of all coal-fired generators will be adversely impacted. Victorian brown coal generation plants will be the most affected
- Investors will consider the risk of National Electricity Market participation to have fundamentally changed. Response to this will influence the cost, mix and pace of technological change which is likely to ultimately diminish the rate and / or quantum of emissions reduction
- To recover additional costs associated with purchasing permits, generators' bidding behaviour is likely to change and lead to an increase in price spikes in the wholesale spot electricity market and hence volatility and risk
- Reliability of supply delivered by the incentives in the electricity market may decline. This is as a result of altered bidding behaviour and potential withdrawal of capacity in response to the additional costs of permits.

It is widely accepted that the introduction of the ETS will immediately lead to higher wholesale spot prices of electricity and that some recovery of the cost of permits will be available. However, because of relative emissions intensity and SRMC (excluding permit costs per unit of output), the volume produced by both brown and black coal-fired generator is disproportionate to their price setting capability.

Brown coal-fired generators will have limited ability to recover their higher costs in buying permits through higher wholesale spot prices as they are on the margin setting the price only about 50% of the time. Black coal-fired generators will have similar limits on the capacity to recover the cost of permits through higher wholesale prices.

According to modelling done by MMA<sup>1</sup> for the National Emissions Trading Taskforce, the rise in wholesale electricity prices will not offset the loss due to purchase of permits and lower electricity production. Even with an increase in wholesale electricity prices of from 7% to 33%, the cashflows (and hence profitability) of Victorian brown coal generators is expected to deteriorate by up to \$11.5 billion NPV over the period 2010 to 2030.

The Victorian brown coal generators were privatised in 1994 and proceeds were about \$11.5 billion. We understand that the current value of these businesses has slightly declined, therefore the reductions in cashflow calculated by MMA amount to roughly the entire value of the brown coal industry in Victoria.

In practice, several allocation systems co-exist globally. Switzerland, for example, chose 100% free allocation, so too did most EU states. On the other hand RGGI Massachusetts has committed to auction 100% of its allowances, and used those funds generated to finance renewable energy programs and demand-side management. Some countries such as Denmark, Ireland, Hungary and Lithuania are evidence of a general trend of using a combined approach of free allocation and auctioning,

Given these examples and the potential impacts on coal fired generation in the absence of compensation, we argue that the ETS in Australia is best served by utilising a combined approach of free allocation and auctioning.

What is more important are other characteristics of the scheme such as the tenure of allocation, percentage of auction allocation, baseline emission targets and the design of the underlying carbon instrument that will form the basis of the ETS.

### **To what extent, and on what basis, might it be desirable that permits not allocated via an auction system?**

A variety of permit allocation methods can be used. Typically this will involve some combination of auctioning and free allowances. The basis of this free allocation may be historical emissions or average emissions intensity and actual production levels. Free allocation on the basis of historical emissions is also commonly referred to as 'grandfathering', as some emissions are allowed to continue without attracting a penalty (or carbon price).

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<sup>1</sup> Report to National Emissions Trading Taskforce, Impacts of a National Emissions Trading Scheme on Australia's Electricity Markets, 26 July 2006

In the first phase of the EU ETS allocations were made using free allowances only. The cap established was approximately 10% lower than 'business as usual' emissions, resulting in only a small net liability for liable parties, which could be met either through emission reduction measures or permit trading in the market. Experience with the EU ETS to date has revealed one of the problems with free allowance allocations - the effects of over allocation of allowances and the resulting volatile market behaviour.

Each liable party was granted free allowances for the bulk of expected emissions. It follows that each had only a small net liability and faced only a small increase in costs to meet the liability under the scheme. However, each of the free allowances has value – it can be sold at the prevailing carbon price. Liable parties took the value associated with the free allowances into account when setting prices for sales of product after the scheme was introduced. Increasingly, liable entities attempted to raise prices to compensate for the lost opportunity to sell the free allowances which lead to larger price increases than were necessary to cover real cost increases. In the case of electricity, generators have been highly successful in achieving price increases due to the relative inelasticity of electricity demand. This has resulted in a windfall profit for many generators, estimated to total £800 million p.a. in Phase One of the EU ETS for the UK power generation sector. (IGCC, 2007).

In order to reduce or eliminate such windfall gains, initial permit allocations could be made on the basis of relative sector average emissions intensity and actual production levels could be considered. This could be arranged in such a fashion as to result in all generators receiving an initial allocation below that required to meet expected emission levels and so needing to participate in the auction process but at a level which results in an effective compensation regime. Therefore, when carbon trading is implemented in Australia, the method of permit allocation has the potential to alter the financial impact on various market segments, both in relation to direct compliance costs and in relation to the indirect exposure to energy price rises.

The aim of an ETS is to effect equitable economy wide emission reductions through a market-based mechanism which passes carbon-pricing signals into economic transactions across the supply chain. In order to achieve this, free allocation of permits may be warranted in some circumstances for market sectors unduly affected by the introduction of an ETS (for example the coal fired generation sector), however, the allocation size, tenure and structure needs to be carefully considered to take into account sector average emissions, actual production levels and potential financial impact under a range of carbon pricing outcomes.

### **What features of an ETS might impede the emergence of forward markets?**

The emergence of an active, sophisticated and robust forward market is crucial for successful risk management and liquidity and is in fact an indicator of successful market development. Valuable lessons have been learnt in history through the implementation of new markets and dealing with impediments and market events that occur at various stages of market development.

Whilst there are numerous financial, commodity and environmental markets in existence worldwide with greatly differing underlying assets and instruments, there are a number of key outcomes that need to be avoided (or removed where possible) to ensure that the development of forward markets for carbon flourish. These include:

- concentration of permit ownership amongst industry players
- limited buyers and sellers and absence of liquidity providers and new entrants
- asymmetric information flows and lack of transparency
- inability to bank credits which may impede the creation of innovative financial products
- barriers to entry
- inefficient instrument design and lack of standardisation
- inappropriate emission and renewable energy scheme convergence and fungibility with an introduced ETS
- international compatibility and linkage of the Australia ETS instruments and design with key overseas markets such as ETS and post-Kyoto markets.

There are key lessons from the deregulation of energy markets in Australia that are worthy of consideration in designing the ETS- that standardised products and carefully designed prudential arrangements are important to the development of efficient trading markets. Initial development of trading in electricity markets was hampered by the limited range of market participants and non-transparent bilateral OTC trading which was illiquid and lacked depth. Through the introduction of a robust futures market by the SFE, a more favourable industry-wide credit environment and the emergence of new trading participants in the market, trading activity has significantly increased. The benefits of product standardisation, anonymity of trading and credit risk mitigation provided by the futures market are clear and desirable characteristics for the proposed introduction of the AETS.

**Is it possible to have strong and efficient forward markets with restrictions on the use of permits, such as limited banking and borrowing?**

In order to provide a platform which allows for the development of the ETS, it is essential that the Government focuses on robust and efficient design of the primary carbon credits and allocation methodology and err on the side of less intervention and intricate rules rather than more. As noted by COAG's Energy Reform Implementation Group (ERIG) on energy financial markets developed in conjunction with KPMG

*"Traded financial markets in energy are evolving in a generally positive way. There seems to be limited (if any) role for Governments in traded financial markets per se other than ensuring expeditious improvements as required in the underlying spot market".*

Banking of allowances is in principle a sound design element of an emission trading scheme. In the EU ETS, Member States have agreed to allow banking from the second trading period onwards (ie. post 2012). From the first to the second trading period banking was at each Member State's discretion and 23 out of 25 Member States have decided not to allow for it.

The first phase of the EU ETS has shown that a carbon market starting with a short first trading period and no banking may be subject to high volatility, while the fundamental price drivers are not fully understood by the market.

Experience in Europe indicates that the widespread availability of grandfathering has provided little incentive for early action. Where there is early understanding of the allocation rules and principles and when the extent of grandfathering is more limited there will be incentive to act earlier. Given the European experience, there may be a tendency for some AETS participants to be developing strategies to increase emissions in the initial base year as a way of accessing a larger allocation of permits.

Banking allows those participants which have verified emissions below their allocations to carry over the difference for use in later phases. The banking of allowances is attractive to participants when it is expected that the carbon price will rise quicker than the rate of return on other assets. Under these circumstances, allowances are more valuable as a means to cover future emissions.

Within a series of fixed caps, or a longer-term cap, banking and borrowing could provide more flexibility without undermining certainty. They could help smooth compliance over time and through investment cycles.

There are, however, potential downsides to banking:

- Unrestricted banking may encourage physical emission related activity that is concentrated in time in order to optimise the financial impact of carbon prices rather than more strategic and dispersed outcomes
- Over-generous allocation in one phase effectively eases the burden of caps for future phases, since that allocation can be carried forward into those future phases.

However, in an efficient market, these potential downsides would not eventuate to any great extent or for a sustained period of time as market forces would act to ensure optimal economic allocation of permits and related risk management and financing activity. This would ensure that carbon permit trading activity is deep and liquid and that each carbon permit is fungible and able to be used for future compliance requirements.

In addition, banking of credits would facilitate the development of structured financial risk management product offerings from market participants (including financial institutions and liquidity providers) which would further promote efficient market development.

For example, to the extent that a liable entity may incur a cost of capital for holding permits over a period of time, financial institutions may be in a position to enter into repurchase agreements which reduce working capital requirements and funding costs for periods of time, yet allow the entity to maintain possession of credits for future periods to meet compliance requirements under an ETS.

Banking is also likely to provide increased consistency of carbon price curves over time and hence simplify valuation processes and decrease uncertainty around commitment period transition dynamics.

The benefits of allowing intra and post-commitment period banking far outweigh the associated potential downsides and in fact, the introduction of such a feature would bring the AETS in line with more mature and standardised financial and commodity markets currently in existence.

On the other hand, the introduction of borrowing is more controversial as this activity may lead to undesirable market dynamics that put significant pressure on future carbon credit pricing and lead to required Government intervention in the form of additional credit allocations to control steep price rises if they occur. Most existing emission trading schemes do not allow borrowing due to the potential negative impacts that may result. In order to ensure that the AETS is readily integrated into international emission markets, it is essential that we adopt common design features and parameters where appropriate to aid this harmonisation.

If it is unavoidable, and borrowing is to be included in the AETS, it is recommended that tight controls are implemented and perhaps restrictions on the extent of borrowing and the permitted tenor of borrowing.

In summary, KPMG believes that banking is a desirable feature in an ETS and is essential for a strong and efficient forward market, borrowing is less so as it is not a widely adopted feature of existing emission markets and has a number of potential negative impacts.

## **2.3 Positioning Australia as a regional hub in the Asia Pacific Carbon Markets**

### **How can Governments help facilitate Australia becoming a regional hub in the Asia Pacific Carbon Markets?**

There will be significant challenges during the design and implementation of the ETS. The Government will have to balance practical and achievable change with what will be acceptable to industry, and to the community. It will also need to analyse the full economic consequences and impacts flowing out of the introduction of an ETS. In addition to meeting targets to reduce GHGs, other objectives such as stimulating investment in low carbon technologies and positioning Australia as a regional or global trading hub need to be considered.

It is without doubt, climate change has spawned a booming market in emissions trading, with the UK quickly becoming its hub. Interest in carbon trading is booming. The level of interest is not surprising with more than \$US60 billion (\$68.1 billion) changing hands in the global carbon market this year, double the trade of last year and up from just \$US400 million three years ago. Analysts estimate the market could be worth \$US1 trillion within the next 10 years. By 2030, according to some carbon bulls, it may even be the biggest commodity market in the world, overtaking crude oil (Murray L, 'Bali's business bonanza', The Sydney Morning Herald, 15 December 2007).

The Rudd Government has made it clear that it seeks to position Australia as a regional carbon hub, and, in fact, a key objective of the Garnaut Climate Change Review is to assess the economic opportunities for Australia as a regional hub for low carbon emission technologies and industries.

Australia's financial markets are well-placed to meet the challenges of emissions trading, but swift action is required. Many believe Australia, with its natural resources, strong financial services industry and robust legal system, should be a regional hub for carbon trading. However, if the Government fails to move quickly, Australia may be left to play 'catch-up' with the rest of the world's carbon markets. Having only just ratified the Kyoto Protocol, we are already seeing the likes of Singapore and Hong Kong gaining early-mover advantages.

In the early stages of market development, issues relating to data ownership, management and availability may impede the development of viable carbon markets. Efficient market operation is dependent upon the availability of relevant, credible and timely data/research to enable price discovery and other market-related activities. This was evidenced by the impact of incorrectly reported emissions data on the price of permits in the EU ETS in 2006.

While issues relating to data availability will inevitably exist, they are unlikely to be widely perceived as a key barrier to the development and evolution of carbon markets. Financial intermediaries, exchanges and market operators are usually the parties involved in the dissemination of data to support price discovery – as markets mature over time, market operators, exchanges and information service providers have the commercial incentive to develop, maintain and disseminate price and transaction-related data sets.

Governments play an important role within market formation, providing signals and incentives to encourage trading activity. In the pre- and early market phases Government initiatives can have an impact in promoting awareness and education, research to influence market design and operating rules, and facilitate migration of traditional financial market practices to manage risk and value entitlements in carbon markets.

A factor impacting the knowledge transfer and any aspiration to position Australia as a carbon hub is the current perceived lack of experts in this field. In a Sydney Morning Herald article dated 15 December 2007, Pacific Hydro highlighted their need for resources and the lack of 'carbon experts to go around'. Many Australians with the right expertise have fled to London over the past five years, as it was quickly emerging as the world's carbon trading hub. If the Australian Government is serious about creating a carbon hub or at a minimum creating a centre of excellence, it must identify ways in which to support, or ways in which to bring this knowledge and experience back to Australian shores.

That said, Australian companies do have some experience in carbon trading, with a thriving voluntary market and the NSW Greenhouse Gas Abatement scheme, which was set up to reduce emissions for electricity supplied to NSW consumers. Further, we have a strong electricity and renewable energy market, and are working towards improving the liquidity and structure of our natural gas markets. Our energy markets are much more mature and sophisticated than other electricity markets in Asia. In fact, most of Asia's energy markets are yet to undergo deregulation and do not have the benefits of 12 years of market development experience.

The presence of strong international financial institutions and corporates in Australia with international investment and project experience serve as a strong base to support the development and commercialisation of carbon projects and technology within the Asian Pacific region, whilst using Australia as the central carbon hub.

The other area where Australia could gain an advantage is the voluntary market, through the establishment of strong compliance and enforcement regimes which has yet to be evidenced anywhere in the world.

The voluntary markets continue to have a presence, even in a regulated environment and will develop into strong, long-term markets. However, there are some key issues associated with the validity of some of these voluntary markets, some of which have been plagued by concerns in relation to the quality of credits and lack of uniform standard by which they can be measured.

Australia could also take a lead role and move quickly to shape the development of a uniform standard and certification to further improve the reliability, quality and degree of standardisation within the voluntary carbon markets.

It is recognised that voluntary and regulated emission markets can and should co-exist hence the Australian Government should ensure that, where possible, these markets are encouraged to develop further and integrate with the Asia Pacific region.



### **3 Further consultation**

KPMG expresses interest in continuing to play a key role in the development of workable and positive outcomes in relation to the Australian Government's climate change policy. We also expressly seek further involvement and will continue to offer our support in discussion and further consultations held in relation to the Garnaut Review on Climate Change

#### **Contact details**

Rachael Phelan  
KPMG  
147 Collins Street  
Melbourne, Victoria, 3000, Australia

Telephone: +61 3 9288 5896  
Facsimile: +61 3 9288 5131  
Email: rphelan@kpmg.com.au