Australia's Financial Markets are Well Placed to Facilitate Emissions Trading

Emissions Trading Schemes (ETS) are reliant upon forward markets to facilitate price discovery and risk transfer at least cost. Pre-requisites for the establishment of a forward market include the existence of legislation and emission reduction targets.

Anthony Collins, General Manager of Emerging Markets at ASX Ltd, looks at how emissions trading is likely to evolve and how Australia's financial markets are well placed to meet the challenge.

In 2006 the European Union Emissions Trading Scheme (EU ETS) accounted for $24.36bn or 81% of all trading in the global carbon market. The second largest emissions trading scheme in the world was the fledgling NSW Greenhouse Gas Abatement Scheme in which the value of trading was more than five times greater than the highly publicised Chicago Climate Exchange (CCX). Emissions trading schemes have a long way still to evolve.

Figure 1 – Carbon Market at a Glance: Volumes and Values in 2005-06

	2005		2006	
	Volume (MtCO2e)	Value (MUS$)	Volume (MtCO2e)	Value (MUS$)
	Allowances			
EU ETS	321	7,908	1,101	24,357
New South Wales	6	59	20	225
Chicago Climate Exchange	1	3	10	38
UK ETS	0	1	na	na
Sub total	328	7,971	1,131	24,620
	Project-based transactions			
Primary CDM	341	2,417	450	4,813
Secondary CDM	10	221	25	444
JI	11	68	16	141
Other Compliance	20	187	17	79
Sub total	382	2,894	508	5,477
TOTAL	**710**	**10,864**	**1,639**	**30,098**

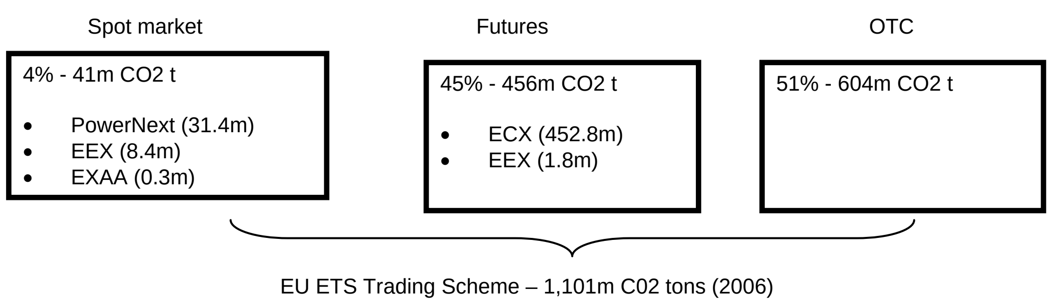
Source: "State and Trends of the Carbon Market 2007", May 2007, World Bank

It will not be until 2010 or 2011 that Australia has its own national ETS. Ideally, the design of Australia's ETS will be consistent with the evolving international framework for emissions trading post the Kyoto period (2008 – 2012). Given the fragility of the international negotiation process, policy makers will need to balance the requirement to retain flexibility in

the design of Australia's ETS with sufficient certainty, including the provision of legislative certainty and emission reduction targets at the earliest opportunity to facilitate informed decision-making across all facets of the economy.

Financial markets will underpin the success of Australia's ETS and its objective to reduce greenhouse gas emissions at least cost to economic growth and national competitiveness. As evidenced in other financial markets, including the EU ETS, liquidity in Australia's ETS will gravitate to the forward markets. Forward trades are agreements to buy or sell an asset (which can be of any kind) at an agreed future point in time. Forward trading can be facilitated directly between counter-parties or via brokers within the over-the-counter (OTC) market, or through standardised contracts listed on futures exchanges where prices are broadly disseminated and a clearing house becomes the central counter-party to all trades.

Figure 2 – Liquidity Gravitates to the Forward Markets (the European Experience)



Source: 2006 data from the World Bank & Reuters.

Pre-requisites for a financial market to succeed are many and complex. The largest impediments to the commencement of forward trading in Australia at the moment are the lack of regulatory certainty to define the underlying unit to be traded and the absence of emissions reduction targets – in other words the 'supply constraint'.

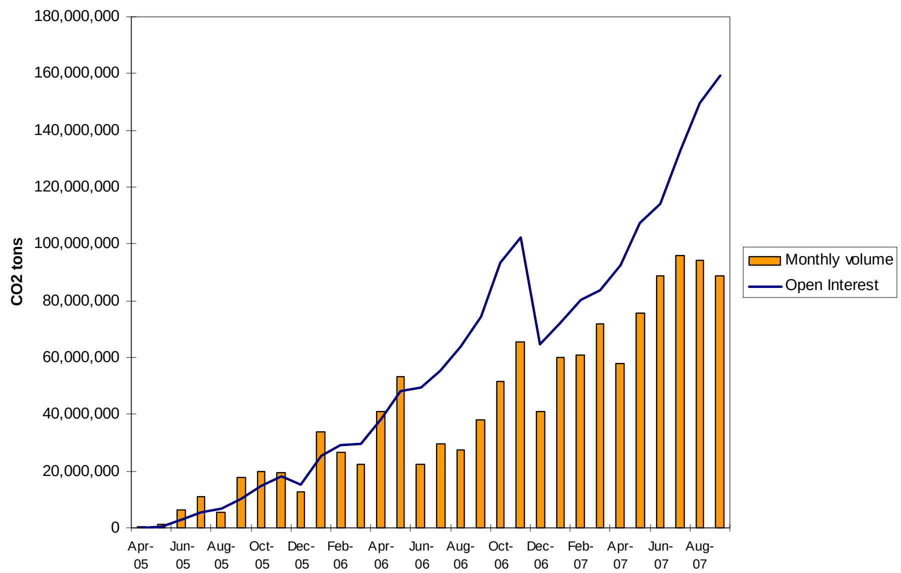
The cost of emitting greenhouse gases, as signaled by the forward markets, will impact decision-making across the entire economy. This will include the level of investment in cleaner electricity generation and projects to generate 'carbon credits' from approved offset mechanisms or, at a consumer level, our mode of transport and choice of consumer appliances. For business, the cost of emitting greenhouse gases can be managed through financial markets in the same way that exposures are managed to fluctuating interest rates, foreign exchange, commodity and energy prices.

Most banks already have dedicated teams to prepare their customers for the on-set of a carbon-constrained world. For example, the provision of finance has and will increasingly become contingent upon banks understanding the 'carbon' risks of their business customers. Once the pre-requisites for a forward market have been met, banks will also provide their own hedging products to help customers manage their exposure to 'carbon risks', be they products embedded in lending structures or existing as out-right derivative agreements such as swaps and options. Banks will in turn need to off-lay their risks to participants in the OTC market, including other banks and hedge funds.

A significant proportion of trading activity in Australia's ETS will gravitate to a futures exchange and clearing house. Futures exchanges provide market participants with the benefits of standardisation, centralised liquidity and anonymity. Additionally, futures clearing houses mitigate counter-party default risks. Such risks are exacerbated in OTC markets when credit spreads are wide and/or volatile as is presently the case.

The growth in futures volumes and open interest (the number of open futures contracts) in emissions permits at the European Climate Exchange (ECX) suggests that reports of the demise of the EU ETS are greatly exaggerated. Volumes and open interest would not be growing if there was a lack of confidence in the EU ETS or the financial market infrastructure supporting it.

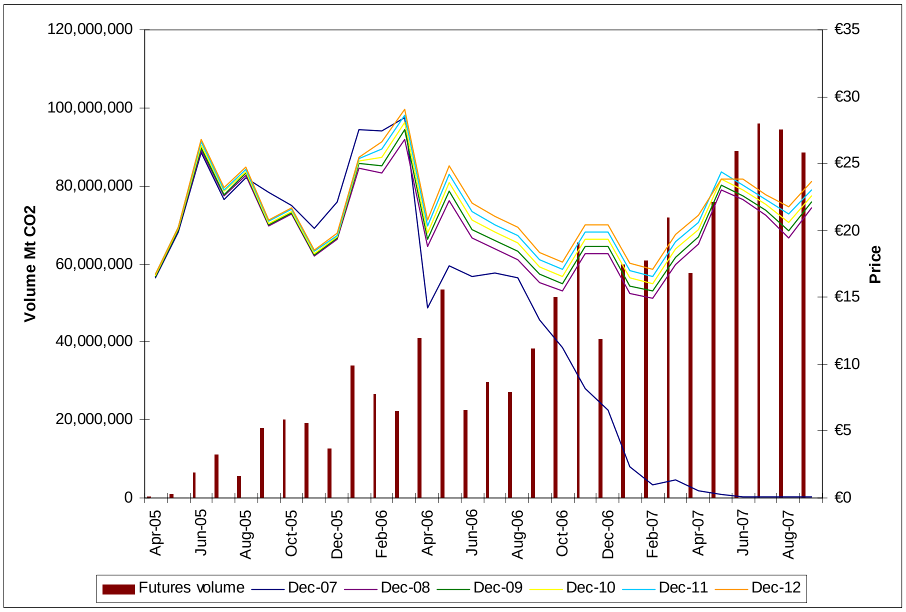
Figure 3 – Futures Volumes and Open Interest at ECX (a Market in 'Good Health')



In addition to the high profile lessons from the EU ETS about the allocation process and emissions reporting, another important lesson is timeliness: the forward market should commence as early as possible to ensure a smooth transition into an Australian ETS. By way of example, market participants were able to start managing their exposure to the EU ETS Phase II (2008 – 2012) in the OTC market as early as 2004 and on a futures exchange from May 2005.

ECX, the company in Europe responsible for marketing the pre-eminent futures contracts on emission allowances in the EU ETS, utilises the existing financial market infrastructure of ICE Futures (formerly the International Petroleum Exchange) and LCH.Clearnet. ECX owes its success to the use of this pre-existing financial market infrastructure as much as to its own marketing efforts.

Figure 4 – Futures Prices and Volumes at the European Climate Exchange (ECX)



What bodes well for Australia's national competitiveness is the existence of the financial market infrastructure required to support an ETS. This is particularly evident with the emergence of a highly liquid electricity futures market operated by the Australian Securities Exchange (ASX) to support participants in the National Electricity Market (NEM), the largest sector within the Australian economy to be impacted by an ETS. The success of this market provides a solid foundation for trading in futures contracts based on emission permits and fungible 'carbon credits' generated from offset mechanisms.

Figure 5 – Stationary Energy is the Largest Contributor to Australia's Greenhouse Gas Emissions

IPCC sector	Emissions (million tonnes)			Change in emissions (%)	
	1990	2004	2005	2004-2005	1990-2005
Energy sector	287.0	386.1	391.1	1.3%	36.3%
Stationary energy	196	276.1	279.4	1.2%	42.6%
Transport	61.9	79.5	80.5	1.3%	30.0%
Fugitive fuels	29.1	30.5	31.2	2.2%	7.3%
Industrial processes	25.3	30.6	29.5	-3.6%	16.5%
Agriculture	87.7	89.8	87.9	-2.1%	0.2%
Livestock	65.9	61.6	62.1	0.8%	-5.8%
Other agriculture	21.8	28.2	25.8	-8.5%	18.4%
Waste	18.3	17.1	17	-0.7%	-6.9%
Land use change and forestry	128.9	35.5	33.7	-5.2%	-73.9%
Forestry sinks	0	-17.8	-19.6	-10.3%	-100.0%
Land use change and forestry	128.9	53.3	53.3	0.0%	58.7%
Australia's net emission	**547.2**	**559.1**	**559.1**	**0.0%**	**2.2%**

The OTC market for emission permits in Australia, given its likely size and the credit standing of its participants, will inevitably be constrained by counter-party credit limits. To alleviate these counter-party credit constraints the ASX will accommodate the registration of OTC trades into its futures clearing house, just like it currently does for its electricity futures and options market.

Australia's electricity generators, as well as Australia's larger resource companies, are daily users of OTC derivatives, futures exchanges and clearing houses. Moreover, Australia is already a regional hub for all of the brokerage houses, futures clearing participants, investment banks, market making firms and hedge funds needed to facilitate a very liquid market for emissions permits and fungible carbon credits.

Figure 6 – Electricity Futures Volumes vs System Demand in the NEM

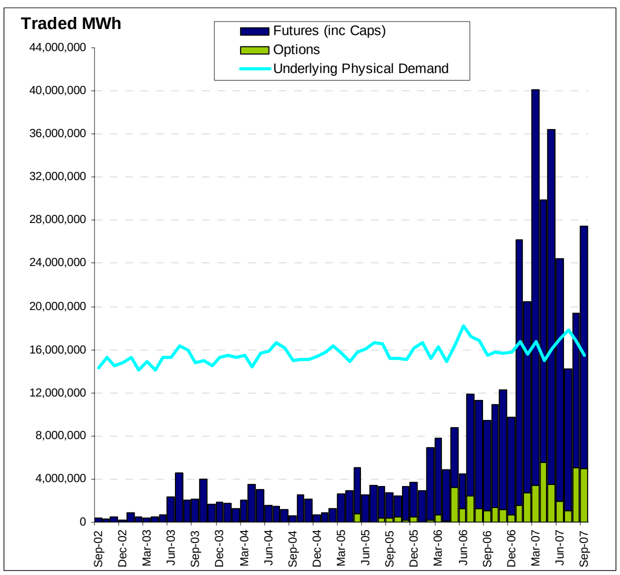
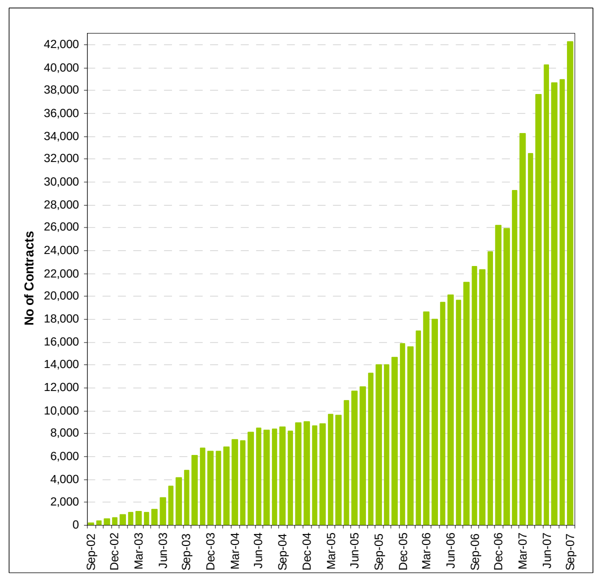


Figure 7 – Open Interest in Electricity Futures at ASX



In summary, Australia has financial market infrastructure, including the futures exchange and clearing house operated by ASX, in place to provide the price discovery and risk transfer mechanisms needed to transform Australia into a carbon conscious economy. The transparency and reliability of the forward market will also support capital raising in Australia's debt and equity markets to fund low emission technologies and generate a new universe of 'investment opportunities' for fund managers and individual investors.

Attachment 1 - How Large could the Emissions Trading Market Grow?

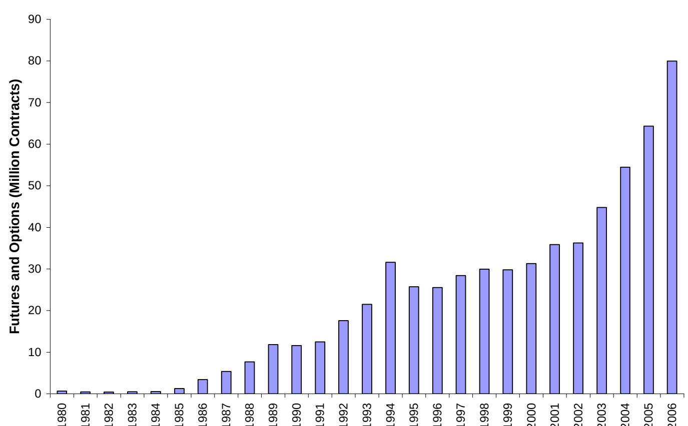
The value of permits to be freely allocated and auctioned over the first 10 years of Australia's ETS is likely to be in the vicinity of $105 billion[1]. To put this in perspective, the value of permits for any one year commitment period would represent less than 1% of GDP.

By way of another comparison, at 30 June 2007 there were $58 billion of Commonwealth Government Securities (CGS) on issue. Analogous to the CGS market, the issuance of short, medium and long-dated permits (including permits dated beyond 2020) into the market through free allocation and auctioning will support the development of a liquid forward market. The value of risk traded in forward markets typically exceeds the value of the underlying market by several multiples albeit this liquidity takes time and confidence to build.

Australia accounts for only approximately 1.5% of global emissions (New Zealand accounts for 0.2%), so by any measure, the sum of trading in emission trading schemes globally will be significant. Linkages through recognition of common offsets and even fungiblility of emission permits between emission trading schemes are likely to occur over time.

Emission trading schemes are policy driven markets. Clear and certain policy is required to build market confidence and in turn liquidity. As evidenced in the EU ETS and Australia's electricity futures market, confidence and liquidity takes time to build. To put in perspective the time-frame and market liquidity required for Australia's ETS to meet its environmental objectives at least cost it is worthwhile re-visiting the growth of financial derivatives, for which financial futures exchanges which have only been in existence for less than 35 years.

Futures and Options Volumes at SFE (1980 – 2006)



[1] Assumptions: 75% coverage of Australia's greenhouse gas emissions, eg 420 million tonnes of carbon dioxide (or equivalent); and, the cost to emit 1 tonne of carbon dioxide (or equivalent) equals $25.

Attachment 2 – Voluntary vs Emissions Trading Markets

A fledgling voluntary market for carbon exists in Australia. This market is primarily built around standards and accreditation provided by the Australian Greenhouse Office (AGO). Several different international standards for the voluntary market are also evolving.

There will inevitably be an overlap between credits traded in the voluntary market and those used to meet obligations in Australia's ETS. Participants in the voluntary markets should be cognisant of issues such as double counting and that all credits are not of equal value. In other words - 'buyer beware'.

Credits for early action and from offset mechanisms will represent important components of Australia's ETS. The market for credits prior to the commencement of Australia's ETS will be small and the price signal weak. It will not be until Australia's emission reduction targets are set will a robust forward market be able to determine the marginal cost of emitting greenhouse gases or investment in projects to generate credits from early action or approved offset mechanisms.

The provision of 'carbon neutral' products and services is already playing an important function in providing consumers with choice, and for some companies, competitive advantage. For other companies, becoming carbon neutral is not an option, and their efforts are focused on measuring their 'carbon foot-print', understanding the risks of climate change (and how to mitigate them), and preparing to meet emissions reporting and emissions trading scheme obligations.

There is no shortage of brokers or aggregators of carbon credits in advance of the legislative certainty and emission reduction targets needed for the financial markets to support the transition to an ETS. The mainstream financial community, however, are unlikely to become involved in any 'grey market' until regulatory certainty and emission reduction targets are in place.

The emission reductions achieved through the voluntary markets such as CCX, or even the NSW GGAS base line and credit scheme, illustrate that they are an interim phase of the market's evolution but not the way forward to achieve a global reduction in greenhouse gas levels.