10 August, 1998

Mr Ian Dundas Committee Secretary House of Representatives Standing Committee on Environment, Recreation and the Arts Parliament House Canberra ACT 2600

Dear Mr Dundas

#### **Role for ASX in Trading in Greenhouse Gas Emissions**

Thank you for the opportunity to comment on the possibility of ASX being involved in the trading of greenhouse gas emission permits. As ASX heads into the future with our core purpose to conduct markets of integrity, we welcome the opportunity to more closely examine potential new developments. In our role as innovator, ASX is continually searching for and investigating new markets to which our marketconducting skills and expertise can add value.

Please find attached ASX's submission to the House of Representatives Standing Committee on Environment, Recreation and the Arts Inquiry into the Regulatory Arrangements for Trading in Greenhouse Gas Emissions.

For any further information, my contact details are as follows Phone: 02 9227 0019 Fax: 02 9227 0280 Email:michael.roche@asx.com.au

Yours sincerely,

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## **Executive Summary**

In December 1997, Kyoto hosted the third Conference to the Parties to the United Nations Framework Convention on Climate Change. The outcome of this was the Kyoto Protocol which allowed for a measure of flexibility in meeting emission reduction targets through the inclusion of emissions trading. As a result, emissions trading is now on the Australian and international agenda.

As ASX heads into the future, it is constantly searching for new markets to which it can add value through its skills and technology. Our core purpose is "to conduct markets in which investors and enterprises come together with confidence to create prosperity through the sharing of risks and rewards". ASX is striving to position itself to meet the needs of its customers now and in the future. A market for emissions trading could be established by ASX, building on the skill and technology base we possess to design and operate markets. The use of an existing market provider such as ASX could assist in overcoming the barrier of a lack of confidence in an emissions trading scheme.

### Key Points:

- The implementation of an emissions trading scheme needs to be considered in the context of the entire environmental management policy. A market-based instrument such as emissions trading is preferable to a purely regulatory approach as it more effectively penalises non-compliance, more effectively rewards improvements and gives greater flexibility in meeting the operational needs of industry participants.
- The success of an emissions trading scheme will depend on the development of sufficient liquidity which helps to ensure the efficient operation of the market. ASX favours standardised permits which facilitate trading and decrease transaction and administration costs. International transferability should be factored into the design of any instrument.
- It is possible that the Stock Exchange Automated Trading System (SEATS) could be used for emissions trading. The component of SEATS which is used for the matching of trades, the *trading processor*, could possibly be used to match trades for emissions permits. However, for an emissions trading scheme there is a probability of smaller trading volumes and the likelihood of a wider audience. This means the use of the *dedicated distribution mechanism* component of SEATS

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would not be cost effective. A more likely option would involve utilising a public network such as the internet.

- One option for an emissions trading system could be to build an internet-based bulletin-board style market where participants could post offers to buy or sell permits. Actual trading could occur over-the-counter with the designated regulatory body tracking the transfers of permits.
- A second more sophisticated option would be to have an internet-based system in which the trades were actually matched and transfers recorded. It could be a second phase enhancement to a bulletin-board style market.
- A greater number of participants in an emissions trading scheme will help to ensure that a market can exist (by helping to provide liquidity), counter the effects of market power by helping to maintain a certain level of competition and spread the burden of the cost of abatement across the economy. ASX suggests that the government consider some incentive schemes to ensure a critical mass of participants for initial liquidity in the marketplace.
- ASX considers a hybrid model for the initial allocation of permits would provide a more flexible solution to suit the potentially changing industry structure of emissions trading participants in future years. In addition, ASX views it as necessary that the designated regulatory authority for emissions trading retain a percentage of permits and manage their subsequent distribution. Such a move would help to alleviate concerns of excessive market power and inadvertent barriers to entry.
- For an emissions trading market to be successful, it is imperative that there be a stringent compliance and enforcement regime. To facilitate the task of compliance, verification and enforcement, it is likely that a designated authority would need to maintain a central register to track transfers of permits. ASX suggests the creation of legislation and a statutory body with the appropriate powers as the best way to achieve these outcomes.
- Matters such as fair trading requirements, investor protection requirements and record-keeping requirements could be dealt with in the Business Rules of the market provider. In ASX's view, the extent to which these matters need to be provided for in the Business Rules is highly dependent upon the type of market and the nature of its participants.
- A combination of measures such as independent verification of emissions and enforcement through weighty penalties will help to ensure that once there is settlement of the "paper trading" of permits that this can then be translated to the physical market. ASX is not in favour of implementing a system of pre-sale verification of emissions. Such a measure would be extremely high in administration costs and would significantly reduce the level of liquidity in any emissions trading scheme.
- It is necessary that the government provide conditions conducive to trading for any emissions trading scheme to be successful. This general principle crosses all areas from permit design and access to the market to design of a regulatory framework which helps to maintain the economic value of the permits and engender confidence in the market.



### Introduction

Following the December 1997 agreement on the Kyoto Protocol which set quantified emission reduction targets for industrialised countries, emissions trading is now on the Australian and international agenda.

Emissions trading is only one option for facilitating compliance with environmental targets in Australia. **ASX is aware that a number of other measures are currently in operation and would like to stress the importance that the policies provide an integrated package without any single policy instrument undermining the effectiveness of another.** As a market-based instrument rather than a pure regulatory measure, emissions trading will help to more accurately reflect the true cost of pollution and provide the ability to divert funds to enable better environmental management measures. Emissions trading provides a more effective reward for reduced emissions, more effective penalties for non-compliance and greater flexibility for companies to meet their operational needs.

The success of an emissions trading market will depend on the development of sufficient liquidity which helps to ensure the efficient operation of the market. In theory, if the initial allocation of permits accurately matched the needs of the companies there would hardly be any need for trading. In reality, however, company plans change so their demand for emission permits is likely to fluctuate with the resulting need for a trading system. A more efficient market will help to lower the overall cost of emissions abatement. To build confidence and liquidity in the market place, a number of key industry players would need to be early participants in any emissions trading scheme.

Integral to the success of any emissions trading scheme is that future participants understand how it will operate, the benefits of this policy instrument and the advantages of this mechanism over other alternatives. Clearly, they should also be aware of the extent of the regulatory burden resulting from an emissions trading scheme. It is important that participants be educated in the ways in which an emissions trading scheme will impact upon them.

# About ASX

ASX is heading into the next millenium with its core purpose:

#### "To conduct markets in which investors and enterprises come together with confidence to create prosperity through the sharing of risks and rewards."

More than a decade ago Australia led the way in becoming the first nation in the world to unite its separate exchanges into a single amalgamated body. In 1998, ASX continues in its role as an innovator as it becomes one of the first stock exchanges in the world to demutualise and list as a public company. With these changes, ASX is striving to position itself to meet the needs of its customers now and the needs of its customers in the future.

Presently, ASX conducts markets in equities and options as well as the Enterprise Market (e.m.), an innovative internet-based venture capital market for small to medium sized enterprises (see *New Market Structures* below for further details). ASX represents high standards of integrity and reliability in the marketplace, as well as quality service to its customers. We are committed to our role in bringing together enterprises and investment capital to the benefit of the broader economic community.



With the tremendous technological growth, the forces of globalisation and the increasing sophistication of our customers, many new opportunities are arising. In its role as innovator, **ASX is continually searching for and investigating new markets to which our market-conducting skills and expertise can add great value.** As a centre of excellence for the conducting of markets, ASX can provide the technical, regulatory and market knowledge to design and operate a cost-effective market.

### **Design of the Emissions Trading Instrument**

**ASX favours standardised emissions trading permits as this facilitates trading, as well as decreasing transaction and administration costs.** Features for which there should be standardisation include:

• **Duration (permit periods).** This is the period for which the emission permit is valid. Shorter durations provide better control for ensuring emission reduction targets are met. Longer periods provide firms with more certainty and flexibility to comply with emission reduction targets by allowing for better planning over a longer period of time.

Two variations can be built into the concept of duration: the banking and borrowing options. The Kyoto protocol allows for the banking option whereby it is possible for any part of an emission entitlement not used during the specified time period to be carried forward for use in a subsequent time period. Borrowing allows for the entities to exceed their emission limit in a specified time period on the condition that the excess is deducted from entitlements in future time periods. These options make the tracking of permits significantly more complex.

• **Greenhouse gas units and emission load.** ASX supports the use of a weighting index to convert other greenhouse gases to carbon dioxide equivalent units in the interests of standardising the permits for easy exchangeability. The emission load of a permit (the amount of greenhouse gas allowed to be emitted over the permit period) can be measured in a number of ways including by a rate of emission (e.g. 1 tonne CO2 equivalent for each permit) which allows for tighter control of emission rates. Another option is to denote the total amount for multiple year emissions which provides greater flexibility by allowing firms to emit at rates suited to their operational needs.

With the possibility of a future international trading scheme, an issue which may need to be factored into the design of the instrument will be international transferability. This transferability will be facilitated by the standardisation of various characteristics of the instrument (as discussed above). Another concern arising in the international context is that "there is the problem that the emissions credits which are [internationally] nominally identical may involve different probabilities that the emission reduction required to generate the credit has actually been (or will be) undertaken. The effectiveness of monitoring and enforcement procedures may differ significantly between countries."<sup>1</sup> In other words, the validity or "quality" of some credits may be questionable and in the international context this is very difficult to monitor.

<sup>&</sup>lt;sup>1</sup> Mike Hinchy, Kevin Hanslow, Brian Fisher and Brett Graham (ABARE), *International Trading in Greenhouse Gas Emissions*, 1998, p. 51.

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### **Trading Framework**

#### Market Structure

In designing a market structure, a number of costs including regulation and transaction costs will need to be taken into consideration. To be a viable policy option, these costs need to be held at a minimum. In the case of transaction costs, one way to reduce this cost would be to use existing market infrastructure such as that available through ASX. **ASX could establish a market for emissions trading with relatively low costs because of its expertise as a market provider and the technology and skills-base it possesses to design and operate a market.** A number of bodies (including Australian Bureau of Agricultural and Resource Economics, Industry Commission) have suggested the use of institutions which currently conduct markets.

One other reason for doing this is that, as stated in the Department of Industry, Science and Tourism submission, "There might... be a lack of confidence and inexperience with trading on a new exchange. This might be addressed by encouraging the use of existing institutions to administer the scheme (such as the ASX, existing brokers) and inclusion of participants accustomed to trading with each other". **ASX is in agreement that use of existing institutions which currently operate markets may help to engender confidence in an emissions trading scheme.** 

There are a number of ways in which an emissions trading system could operate. A number of reports have suggested formal and informal markets as the options.<sup>2</sup> However, ASX believes that there are several more options available, as discussed below.

#### Informal Market Structures

An informal market could be an option where there are relatively few participants. Participants could trade directly with each other if they had previously established relationships. Alternatively, brokers could facilitate the matching of buy and sell orders and provide price and market information. When the number of participants in such a scheme grows too large, the supply of information regarding prospective buyers/sellers and prices becomes inefficient. At this point, it is appropriate and more cost effective to adopt a more formal market structure.

#### Formal Market Structures

The submission of the Department of Industry, Science and Tourism (DIST) refers to two variations in a formal exchange: open-outcry and screen-based trading.

The ASX equities and derivatives markets are both run on electronic (screen-based) trading systems with the derivatives market having moved from open-outcry trading to screen-based trading early this year. The Sydney Futures Exchange (SFE) has also announced plans to move from open-outcry to a screen-based trading system some time during 1999 and many other markets around the world are travelling this path. This trend away from open-outcry to screen-based trading, is driven among other things by the globalisation of financial markets, technological developments and by the desire to reduce transaction costs. In addition, this type of market provides very limited access as participants need to have physical representation on the market.

<sup>&</sup>lt;sup>2</sup> For example, Department of Industry, Science and Tourism, Submission to the Inquiry into the Regulatory Arrangements for Trading in Greenhouse Gas Emissions.



SEATS is the Stock Exchange Automated Trading System used for equities trading at ASX. It currently operates with an average 24,000 trades occurring daily through its *trading processor* and provides equal access to market participants across Australia via a *dedicated distribution mechanism* (private network). It is unlikely that the **entire** SEATS technical infrastructure could be replicated or re-used for emissions trading and neither is it certain that this would be the most suitable model for the market.

It is possible that the component of SEATS which is used for the matching of trades, the *trading processor*, could be used to match trades for emissions permits. On the other hand, for an emissions trading scheme with the probability of smaller trading volumes and the likelihood of a wider audience, the use of the *dedicated distribution mechanism* component of SEATS would not be cost effective. A more likely option would involve utilising a public network such as the easily accessible medium of the internet (see *New Market Structures* below for further detail).

#### **New Market Structures**

The open-outcry and screen-based markets are the two more widely known, traditional types of formal markets. However, the rapid growth and increasing sophistication of the internet is opening the door to various other types of market structures. In recent years, ASX has started to more fully utilise the potential available through the internet. Currently, the ASX Sharenet website is the third most visited website in Australia and the most frequented Australian finance site.

In the last year, ASX has developed an extranet for distribution of information products to subscribers. Also, 1998 has seen the launch of the Enterprise Market (e.m.), the internet-based venture capital market for small to medium-sized enterprises. The e.m. operates by allowing those businesses seeking capital to "advertise" on the internet. Subscribers are able to browse detailed information on the various investment opportunities. Potential investors enter information to provide a profile on their investment preferences. Sophisticated software matches these investor profiles with the ventures. Both parties are informed via email of the potential match. ASX has been advancing and will continue to develop its internet capabilities.

One option for an emissions trading system could be to build an internetbased bulletin-board style market where participants could post offers to buy or sell permits. Actual trading could occur over-the-counter with the designated regulatory body tracking the transfers of permits.

A second more sophisticated option would be to have an internet-based system in which the trades were actually matched and transfers recorded. It could be a second phase enhancement to a bulletin-board style market. Such a system would be much more advanced (and thus, costly to develop) however, the advantages for monitoring, compliance and enforcement purposes could outweigh any initial developmental costs.

A complete automated electronic market with a clearing and settlement system could be designed to allow any qualified person to participate, entering orders via the internet. The site by which participants would enter the market could itself provide, or simply link to other sites providing, market and price information. An electronic clearing and settlement system would facilitate the task of tracking the



transfers of permits. It would not require the equities market -style dedicated lines. This type of market provides the advantage of accessibility to participants all over Australia, or even in the region. With a large enough group of traders, such a system would be the most efficient, providing the best outcomes for participants and the lowest transaction costs.

#### Market Participants

#### Number of Participants

#### A greater number of participants in an emissions trading scheme will help to ensure that a market can exist (by helping to provide liquidity), counter the effects of market power by helping to maintain a certain level of competition and spread the burden of the cost of abatement across the economy.

There is a need to achieve an economic balance between the number of participants (and associated administration and transaction costs), emission coverage and abatement opportunities. There are two approaches to this issue:

- **Upstream** this approach is based on concern with gaining broad coverage but minimising administrative costs. It would mean targeting a convenient point in the production and distribution chain where there are relatively large firms; and
- **Downstream** this approach is more concerned with comprehensive coverage and attempts to target entities to hold permits as close as possible to the emission source.

#### Who will participate?

The question of who will participate in the market is two-fold. Firstly, there is the issue of what entities or industries will be participating in the scheme. Secondly, there is a question of who will actually enter the trades into a market mechanism.

**Participant coverage of the scheme.** Under the Kyoto Protocol six types of gases are to be targeted for reduction. The operations of some industries, such as energy producers or energy cogenerators, makes them likely to be among early participants in any emissions trading scheme. Those who may be able to "earn" credits by sequestering carbon, for example, through the plantation of forests which act as *carbon sinks*, may also want to have early access to any emissions trading scheme. As well as industry participants, other players may include entities such as environmental groups, brokers or private investors. **ASX suggests that the government consider some incentive schemes to ensure a critical mass of participants for initial liquidity in the marketplace.** 

**Market players.** This is a question of direct participation versus intermediation in the market. Currently, in the securities market brokers act as intermediaries, entering buy and sell orders into the market on behalf of their clients. **The nature** and design of an emissions trading market will determine who actually enters buy and sell orders for permits. Issues which need to be considered include the size of the market, the knowledge and skills of participants, the likely volume of trades, the accessibility/reliability of information and the advancement of technology (eg. the internet).

#### Initial Allocation of Permits

A decision has to be made as to the national target for emissions reduction in any time period, in line with any internationally negotiated targets. There are two main methods for allocating permits:



- **Auction** this involves selling the permits to the highest bidders. This method implies a removal of the property rights currently held by the companies regarding the right to emit. This method could act as a barrier to entry for new firms who are either unable to afford or simply unable to obtain any permits for the period in which they wished to start operations.
- **Issue free of charge (or at low cost)** this could be done by "grandfathering" in which emitters are allocated permits based on their emissions in an historical period or based on their historical marginal costs of emission abatement. This method recognises the property rights which emitters have had in the past making it more amenable to them. However, it can also become a barrier to entry if new emitters are unable to obtain or are forced to purchase permits, placing them at a disadvantage to already established companies.
- This second method can present a problem if *world's best practise* is not taken into account. For instance, if historically a company had higher rates of emission due to its failure to consider the environment, based on purely historical rates, such a company could be rewarded for its irresponsible behaviour in the past with a higher allocation of permits now. Its relative cost of abatement would be low (or non-existent in the current period, if it had already implemented emission abatement measures) allowing it to sell its excess permits for a windfall gain. Inequity may also arise if a company has expanded its operations since the period from which it is historically benchmarked. Relative to its size it may be a much "cleaner" operation than a smaller company which is emitting the same amount of pollution. It may, in fact, have already implemented emission rates, it is forced to spend more money on purchasing extra permits than the "dirtier" but smaller company.

A hybrid of these two models is also possible. In the US Sulphur Dioxide trading scheme, approximately 3 per cent of the total permits are held for auctioning in each period.

ASX considers a hybrid model would provide a more flexible solution to suit the potentially changing industry structure in future years. In addition, ASX views it as necessary that the designated regulatory authority retain a percentage of permits and manage their subsequent distribution. Such a move would help to alleviate concerns of excessive market power and inadvertent barriers to entry.

#### Business Rules of the Market

Matters such as fair trading requirements, investor protection requirements and record-keeping requirements could be dealt with in the Business Rules of the market provider. The EMIAA submission suggested a relatively high level of market regulation. In ASX's view, the extent to which these matters need to be provided for in the Business Rules is highly dependent upon the type of market and the nature of its participants. In a market of sophisticated participants, high levels of regulation and supervision are unnecessary and add tremendously to the cost of providing such a market. Additionally, it would make the market very cumbersome and less flexible for translation into the international context.

### **Settlement Framework**

A settlement framework needs to be in place to ensure certainty of the completion of the sale. Issues which need to be considered include: recording of the transfer,



delivery and payment for the permits. Another issue which needs to be factored into this is investor protection.

Maintenance of a central register for tracking of permits would help to ensure that sellers can give "good title" to buyers. If buyers are not confident that they can get good title, a market is unlikely to be successful. Furthermore, a register would provide the basis from which the designated body could ensure compliance with the levels set by the permits and take enforcement action when the levels are breached. **ASX suggests the creation of legislation and a statutory body with the appropriate powers as the best way to achieve these outcomes.** 

As a way of providing more confidence and certainty to market participants, it would be necessary to attempt to reduce the risk of the sale of invalid permits. **ASX** is not in favour of implementing a system of pre-sale verification. Such a measure would be extremely high in administration costs and would significantly reduce the level of liquidity in any emissions trading scheme. However, a number of other measures could help to ensure the validity of permits.

Spot checks of emission levels of participants could be regularly conducted to ensure that monitoring systems are working properly and that participants appear to be able to match their accumulated emissions over the period with the level of permits they hold. Another measure could be to include, within the register of participants' holdings of permits, their last measurement of emissions. This would at the least, reduce the number of invalid permits which an entity could sell. It would still be possible that they could sell more than their available permits, however, by reducing this number of invalid permits, the level of risk to buyers is correspondingly lower.

There will be a tremendously heavy reliance on auditing and "quality control" of permits to ensure confidence in the market. It may be a combination of factors such as enforcement of weighty penalties and independent verification of emissions to ensure that once there is settlement of the "paper trading" that this can then be translated to the physical market. That is, once permits have been purchased on the market, these permits are all in fact valid and allow the buyer to emit a certain amount of greenhouse gases.

As a market provider, ASX does not have the necessary expertise, nor the capacity, to check on compliance with the permit terms nor to take enforcement action for breach of the terms of the permit. The guarantee of *physical* settlement would be in the hands of other parties and it is likely that alliances would need to be formed to ensure that the reality of "physical settlement" mirrors the "paper settlement".

As a part of protecting market participants, a question arises as to whether there needs to be a "clearing house" role in an emissions trading market. If there were such a role, it would help to provide protection to participants against other traders who could not effect payment or who did not have available the number of permits which they had sold. If this role was identified as necessary in the market, it is likely it would have to be assumed by the regulatory authority designated to overseeing emissions trading.

### **Regulatory Framework**

The submission of the Environment Management Industry Association of Australia (EMIAA) suggests that existing regulation may be appropriate as a starting point for an emissions market. Permits and credits are not "securities" or "futures" under the



Corporations Law. This means that the Corporations Law provisions with regard to operating a securities or futures market will not apply. They are unlikely to be regulated as "financial instruments" under the proposed regime for financial products as part of the Corporate Law Economic Reform Program (CLERP). Furthermore, it is likely that the CLERP policy framework would be more complex than necessary for an emissions trading scheme.

In setting up Federal legislation, ASX is strongly in favour of a minimalist approach focussed on policy rather than prescriptive legislation wherever possible. Focusing on broader guiding principles as opposed to detailed legislation yields the benefits of speed and flexibility for both market development and integration with any international emissions trading schemes.

At a minimum, the Government (or designated regulatory authority) must set a national emissions reduction target (emissions cap) over a time period, in line with any internationally negotiated target. From a policy perspective, it is advantageous if this target is not in legislation as it provides greater flexibility in the scheme; flexibility to adjust in relation to international fungibility and integration with other environmental policies.

From a market perspective, failure to legislate the target would create uncertainty, making participants question the level of commitment there would be to effectively enforcing its achievement. For instance, without a legislated target, the Government could decide that due to disastrous economic side effects, the target needed to be increased. The Government could then release more permits into the market reducing the value of permits held by firms to below the price levels at which they purchased them. These possibilities significantly reduce the economic value of permits thus discouraging trading. Furthermore, this lack of certainty would increase the reluctance of companies to participate and hamper effective planning for investment in emissions abatement.

For an emissions trading market to be successful, it is imperative that there be a stringent compliance and enforcement regime. To facilitate the task of compliance, verification and enforcement, it is likely that a designated authority would need to maintain a central register to track transfers of permits. While legislation is not necessary in order for a market in greenhouse gas permits to operate, if there is to be such a registration system, then it is likely that there will have to be some sort of legislatory framework in place for the market.

With emissions targets in place, there needs to be stringent enforcement by the designated regulatory authority. Without proper enforcement (for eg. through heavy penalties), emitters will be unwilling to trade if they are able to "cheat" the system and altogether avoid paying for permits. If an effective regulatory framework - for monitoring the actual physical emission of greenhouse gases - fails to be implemented from the start of an emissions trading scheme, there will be little confidence in the market and therefore, very few participants.

It is necessary that the government provide conditions conducive to trading for any emissions trading scheme to be successful. This general principle crosses all areas from permit design and access to the market to design of a regulatory framework which helps to maintain the economic value of the permits and engender confidence in the market.