

CARBON TRADING WORKSHOP II

Challenges and Trends for Financial Centres

Discussion Summary Report
Tuesday, 8 July 2008

Organised by



Supported by



CARBON TRADING WORKSHOP

Challenges and Trends for Financial Centres

Tuesday, 8th July 2008 8:45 AM ~ 11:00 PM
The Exchange Auditorium, The Exchange Exhibition Hall
1/F., One and Two Exchange Square, Central, Hong Kong

TABLE OF CONTENTS

SPEAKER PROFILES	3
BACKGROUND	4
EXECUTIVE SUMMARY	5
TIME TABLE	7
EVENT TRANSCRIPT	8
Presentation: Matthew Whittell, Chief Financial Officer, Climate Group plc	
PANEL DISCUSSION	20
Philip Napier-Moore, Lead Energy Advisor, Mott MacDonald Ltd	
Kevin Lok, Representative Beijing Office, Carbon Capital Markets	
QUESTION AND ANSWER, AND FURTHER DISCUSSION	22
SPEECH BY DAVID LEWIS, LORD MAYOR OF THE CITY OF LONDON	30

Workshop moderated by **Christine Loh**, CEO, Civic Exchange

- For the complete set of Matthew Whittell's slides, see:
www.civic-exchange.org/eng/upload/files/080708_CarbonTradingII_ppt.pdf
- Please visit the Civic Exchange website for the video recording of both this event (pending) and the 22 May 2008 Carbon Trading Workshop:
http://www.civic-exchange.org/eng/eventvideo_20080522CarbonTrading.aspx
- For the Discussion Report from the 22 May 2008 Carbon Trading Workshop, see:
www.civic-exchange.org/eng/upload/files/080522_CarbonTrading_REPORT.pdf

Civic Exchange is a non-profit public policy think tank that helps improve policy and decision-making through research and analysis.

The opinions expressed in this report represent those of the speakers and do not necessarily represent those of Civic Exchange. This summary is based on transcripts recorded at the Workshop held on 8 July 2008.

SPEAKER PROFILES

MATTHEW WHITTELL

Matthew Whittell is Chief Financial Officer for Climate Exchange plc, an AIM listed company principally engaged in operating exchanges to facilitate trading in environmental financial instruments including emissions reduction credits. Matthew has 18 years investment banking experience specialising in Equity Capital Markets in Europe and Asia. He joined Schrodgers in 1986, where he coordinated financing transactions for UK and European corporate issuers. He co-authored a guide, *Current Issues in Equity Finance*, for the Association of Corporate Treasurers in 1998. In 2000, he moved to Singapore following Schrodgers' acquisition by Citigroup where he led transactions to develop the market for REITs in Singapore, and several transactions for Indian issuers.

Matthew returned to study in 2005 for an MSc in Environmental Technology at Imperial College, London gaining a distinction and winning the law prize prior to joining Climate Exchange in 2006. He also holds an MA in Physics from Oxford University in 1986 and a Certified Diploma in Accounting and Finance.

PHILIP NAPIER-MOORE

Philip Napier-Moore is Lead Energy Advisor at Mott MacDonald Ltd. He has managed a variety of energy advisory projects for the World Bank, IEAGreenhouse Gas R&D Programme, the UK Government, and a number of private investors. He has specific expertise in engineering and economic aspects in the analysis of renewable energy and other low-carbon power generation technologies, especially offshore wind power, biomass, hydrogen energy, concentrated solar projects and CO₂ capture from fossil fuel generation.

KEVIN LOK

Kevin Lok is Chief Representative Beijing Office of Carbon Capital Markets. He is widely experienced in the implementation of greenhouse gas (GHG) reduction projects and the implementation of climate change strategies across a broad spectrum of industrial sectors. After 7 years as a consultant with ICF International, Kevin joined Carbon Capital Markets Ltd (CCM) in 2007 when he established the company's Beijing representative office. His main role is to manage all aspects of the CDM process for a £300 million China Methane Recovery Fund.

DAVID LEWIS

Alderman David Lewis, Lord Mayor of the City of London, was born in Hong Kong, heads the City of London Corporation, and has a wide role travelling around the world representing the city and its business interests. Prior to taking on this role he spent 37 years with City of London law firm Norton Rose working in both London and Hong Kong during his career. His practice focussed principally on privatisations, IPOs, corporate finance and mergers and acquisitions. He has been involved in many of the largest public company takeovers, both in the UK and across international borders. He has also helped a number of UK and overseas clients to access global markets, advising on privatisations and Stock Exchange listings in London and in many overseas jurisdictions.

The City of London is pioneering a range of climate change strategies, including its City Climate Pledge, a climate change adaptation strategy, purchasing green energy, the London Climate Change Partnership, and establishing an Emissions Trading Group.

CHRISTINE LOH

Christine Loh is the Founder and CEO of Civic Exchange, an independent non-profit public policy think tank in Hong Kong. She is also a non-executive Director of the Hong Kong Exchanges and Clearings Limited, and an advisor to the C40 Cities Climate leadership group and GLOBE G8 + 5 dialogue. Prior to starting Civic Exchange she had a career both working in the financial industry and as a legislator in Hong Kong. Christine is a frequent speaker both locally and globally on environmental issues, with a particular focus on air quality, energy, and climate change. She was named one of TIME's Heroes of the Environment for 2007.

BACKGROUND

Civic Exchange is interested in policies, regulations and discussions that address the issues surrounding climate change in Hong Kong, Asia, and globally. Investment and trade are two ways for countries and corporations to tackle this problem. As the world considers how to meet the climate change challenge, financial centres such as Hong Kong must work out what positive role they can play to price greenhouse gas emissions. This is an important step in ensuring the right financial incentives are in place to achieve large emissions reductions within the foreseeable future. The UNFCCC's flexible market mechanisms, including emissions trading and the Clean Development Mechanism (CDM), were designed to assist in that process but they face many challenges. There is expectation that significant progress can be made by the Conference of the Parties takes place in Copenhagen in 2009. One of the hurdles for Copenhagen 2009 is how to adjust the flexible market mechanisms so that they work better, and how financial services can be reshaped to help the mitigation of and adaptation to climate change.

Public policy think tank Civic Exchange and the British Consulate-General co-organised a workshop to explore the latest developments in carbon trading and the implications for the financial centres of the world. This workshop was supported by Hong Kong Exchanges and Clearing Limited, and attended by about 160 participants, predominately from the financial sector.

The session included an in-depth presentation by Matthew Whittell, Chief Financial Officer of Climate Group plc, who offered insights into how effectively cap and trade was delivering environmental benefits, and why trading was more effective than taxation. He also discussed how experience gained from initial operations of the EU ETS was influencing future developments, and the way ahead for environmental asset classes including new product areas and new geographies. This was followed by a panel discussion which offered further insights into carbon trading, and questions from the audience. Alderman David Lewis, Lord Mayor of the City of London, rounded off the morning by making brief remarks on his city's position as the dominant global financial centre for carbon trading.

Civic Exchange has hosted several forums on topics related to climate change, from emissions trading and energy policy mechanisms to China's future energy needs and the energy relationship between Hong Kong and Guangdong. Other forum reports and presentations can be found at www.civic-exchange.org.

EXECUTIVE SUMMARY

Matthew Whittell began the morning's discussion by arguing that the best solutions to environmental problems can be found in the marketplace. Whittell favoured trading instead of taxation, because taxes increase government's revenues in general, which then may not be used to mitigate carbon emissions. Trading on the other hand is directed at reducing carbon emissions. Beyond carbon, Whittell described a range of environmental products that can be traded, including sulphur dioxide and even water. For example, the United States has introduced a cap and trade system for sulphur, which has reduced sulphur emissions by half, with further legislation in place to reduce it by still another half. A focus on local pollutants such as this would suit Hong Kong and would produce tangible results. Caps, the highest point of emissions permissible, are guided by science, and industries that cannot reduce their emissions without incurring too much cost trade with those who can reduce emissions for less. Whittell argues that industry will find the most suitable solutions, which may change over time.

Whittell also touched on the moral issues inherent in these discussions: who uses how much of what and when? Relatively few people are consuming the bulk of non-renewable sources such as fossil fuels. Whittell suggests first that these fuels should be more expensive, and second that with this consumption technologies and sustainable resources are developed to ensure a sustainable energy system for future generations.

He pointed to a major existing hurdle to investing in carbon: the short time remaining within the Kyoto agreement to collect on carbon investments before the 2012 deadline. Planning longer-term allows for more investment, building infrastructure, and creating a futures market for investors. Whittell pointed to the sulphur market in the US which has an initial time frame of 30 years, which allows for sufficient time for investment.

In the case of carbon, Whittell argued that a common global product such as the Carbon Emission Reductions (CER) is necessary to facilitate trading of this good across international markets. He argues that the market will allow for setting a target price, and that this allows industry to make long-term decisions. The price of carbon will be tied to abatement costs. Other topics Whittell touched upon included: water and insurance for wind events (typhoons and hurricanes) as areas likely to grow; opportunities for Hong Kong to develop as an exchange; and some information regarding the European carbon market including the price of carbon.

Christine Loh then gave some insight into the ongoing international negotiations regarding future carbon caps. As Kyoto is renegotiated post 2012, scientists will guide policy-makers to understand the maximum allowable change in global temperature warming. The results from these negotiations will affect financial markets, taxes and caps.

Philip Napier-Moore continued the workshop by discussing new products and markets within the young carbon market from the project development perspective – how to actually reduce emissions. The close 2012 deadline hinders innovation because of the uncertainty or just need to get the emissions reduced, so projects with quick greenhouse gas emissions reductions, particularly in CO₂ and methane are the main focus. The credit off-take market is also developing quickly as credit off-takers convince developers to contract with them to create a quick return. Napier-Moore also pointed to the voluntary markets as an alternate way of selling credits. He also supported CERs as a global tradable commodity, but failing this a market that includes different classes of prices for different projects and regions, with the most sustainable carbon projects demanding the highest prices is feasible.

Kevin Lok then spoke about the Chinese CDM market, which accounts for 70% of the global CDM market, undeniable growth since it started in 2005. Lok stated that project developers must work with a Chinese company or Chinese controlled enterprise, and that the minimum price per tonne of CO₂ equivalent (or unit of CER) is 8 Euro. Lok outlined several challenges have appeared in this market, such as CERs from emission reduction products being overestimated, and a miscommunication between project owners and CER buyers regarding the management of the CDM process.

The moderator then opened the floor to the participants to join the discussion. Topics included: volume of CDM projects in China and the problem of administering these; the advantages of trading a local product such as sulphur compared to carbon; the differences between and exchange and trading; the role of government in shaping the markets; the advantages of markets over taxes for greenhouse gases for climate change mitigation; trading water; the importance of a long-term strategy; setting the CERs as a global deliverable currency; carbon credit standards and ratings; and the future of voluntary markets.

Finally David Lewis made a few remarks regarding the explosive growth of the carbon market and the huge opportunity that exist in this area, on top of climate change mitigation. He suggested that the Hong Kong Exchange could list companies involved in carbon products, particularly with the enormous quantity of CDM projects in China. Lewis also suggested collaboration between Hong Kong and the United Kingdom, as the UK has many experts involved in the China CDM market. Hong Kong should enter this market quickly.

TIME TABLE

Timing:	Topic:	Speaker:
8:45 – 9:00	Registration and refreshments	
9:00 – 9:05	Welcome, General Introduction	Christine Loh Civic Exchange
9:05 – 9:45	<ul style="list-style-type: none"> • Developments in EU ETS • Environmental benefits: Cap & Trade vs. Tax • New developments: products and markets 	Matthew Whittell Climate Exchange plc
9:45 -10:30	<p>Panel discussion and Q & A</p> <p>Supplementary comment by industry experts offering a different perspective on specific aspects of the keynote address – intended to stimulate questions and discussion from all the participants</p>	<p>Moderator: Christine Loh</p> <p>Panellists: Philip Napier-Moore Mott MacDonald Kevin Lok Carbon Capital Markets</p>
10:30 - 10:45	Summary of Q & A	Christine Loh
10:45 - 11:00	An introduction to London’s role as the global financial centre for carbon trading	David Lewis Lord Mayor of the City of London

EVENT TRANSCRIPT

Ms Christine Loh: Good morning, ladies and gentlemen. Thank you very much for coming to our second workshop on emissions trading. I am Christine Loh, the CEO of the non-profit think tank, Civic Exchange. We are again extremely grateful to the British Consulate for bringing over a speaker from the UK, this time from the European Union Emissions Trading Scheme (EU ETS). Some of you have asked us if it was possible to bring a speaker over who understands how the European carbon trading system has developed. We can't think of anyone better who actually is from the exchange itself.

Following that we will kick off and have our usual discussion, and we will take advantage of two other visitors who are here with us who can inform us about some of the latest developments in the carbon market. Philip Napier-Moore, from Mott MacDonald, is from the UK but has recently moved to Bangkok and is very much engaged in new products. He will share some perspectives with us. We also have Kevin Lok of the Carbon Capital Markets. I will introduce them again later, but I would like to start by also thanking the Hong Kong Stock Exchange for lending us this splendid venue to have our second emissions workshop.

I would like to introduce our key speaker, Mr Matthew Whittell. He is the Chief Financial Officer of Climate Exchange, which runs the EU ETS. He is an investment banker by profession and was with Schrodgers for some years. The good news about him is he knows Asia very well. He has lived not only in Singapore but also briefly in Hong Kong.

He has, unusually for an investment banker, a Master of Science in Environmental Technology from Imperial College, so I think when Matthew saw that the future of capital markets was actually going to be in environmental products, he went very sensibly to take a degree in this. Without further ado, Matthew, over to you.

Mr Matthew Whittell: Christine, thank you to you and your colleagues for organising this, and I would like also to add my thanks to the Hong Kong Stock Exchange. Thank you very much for giving us this venue - I hope it is interesting to everybody - and also to the British Consulate for contributing to getting me out here, although I think I probably would have come anyway. It is a very important debate, and a very important location, I think, to be having this debate.

I represent Climate Exchange plc. We are a listed company. We are an exchange. We deal in trading a new set of commodities, which we broadly call commodities in the environmental asset classes. Now, a certain amount of what I will speak about today is specifically about climate change, about carbon, greenhouse gases and emissions trading, but the debate I think is wider than that, and hopefully I will push the edges of that a bit.

This is really about the opportunities. We do think there are some quite extraordinarily large opportunities to be found in this area. We have all grown up thinking that at least a couple of the original elements - air and water - were free at the point of use. Increasingly we are finding that that is not the case, and putting a price on these things which we need to survive is going to be key to an awful lot of what we need to do over my working life, over my children's working life. And I think there are tremendous opportunities there.

Yes, I was an investment banker before I saw the light. I worked for Schrodgers, which was bought by Citigroup. I lived and worked in Singapore for five years, and I think quite a lot of what got me going was flying repeatedly over peninsular Malaysia and looking down over hectare after hectare of oil palm plantation and thinking this is an

interesting industry, but from above you just have to believe there is a better way of using that valuable resource of land area more efficiently than just putting up more oil palm trees. And indeed you sort of know that nature has done that already because what nature did was not to put in place a mono-culture of oil palm plantations, but a jungle, which is a tremendously diverse thing. And it is that diversity, which is natural, that I think is going to be key to many of the solutions.

Climate Exchange plc is an AIM-listed company. Our share price is very volatile but, having only made a profit for the first time just last year, from day-to-day we have a market capitalisation of the order of a quarter of that of the whole of the London Stock Exchange. The Hong Kong Stock Exchange is considerably more valuable than that, quite rightly, but while I would always have a vested interest in saying there is value in this proposition, I point to London as a measure because that is the market out there saying there is value, large value, in finding market-based solutions to these environmental problems.

A couple of other things. This is billed as a workshop, so it really is for you, the audience, to find out as much as possible, so I think Christine has been absolutely right, at the end of what I have to say there is a more formal opportunity for debate and Q & A, but if you are stuck or you don't understand what I am saying, if you want to challenge anything that I am saying and you need to do it right now, please just raise your hand. It is important that this is for you.

What we believe absolutely passionately is that, while there are a number of environmental problems out there that need solutions, the best way to find a solution is to allow the marketplace to work it out. That really lies at the heart of our business and what we do. I can insult my own government, I guess. We in the UK live in a country with probably the highest tax anywhere on road transport, on gasoline, and yet the roads aren't great and the cars don't move very fast. We have probably the highest taxation anywhere on tobacco and alcohol, but the health service is not that great. It has known problems. If you try to force the issue on people and if you do it by way of taxation essentially, and if you do it the way that our own treasury likes to do it, which is that all money that comes into government is fungible and it is not allocated to any one place, then that money just dissipates out and the actual problem that it is trying to resolve, doesn't get solved.

So, that is why our chairman and our founder Richard Sandor, who I think is known to one or two of you here, set about a long time ago trying to create market-based mechanisms for delivering environmental objectives. In fact he wrote three papers a long time ago when two words were inserted into the US legislation defining what a futures contract is. Those two words were "or intangible" in front of the word "assets". So, the legislation said you can have a futures contract based on tangible assets, commodities – oil, wheat, that sort of thing, pork bellies – which, in the words of a film, are like you'd find in a bacon, lettuce and tomato sandwich.

The "or intangible" bit meant you could create futures on a whole different range of investment opportunities. Richard Sandor wrote a paper on interest rates, saying it might be quite interesting to create futures on interest rates and allow people to hedge. Well, the interest rate futures market has taken off to a quite extraordinary extent since then, over the last thirty years or so.

He also wrote a paper on the environment and market-based solutions for the environment and, interestingly, one on insurance, and we will come back to that because it is related to climate change.

Partly as a result of that, but the way economists were starting to try to grapple with solving environmental issues, the States put in place a cap and trade system for sulphur, and that has been in a sense the darling or the key case study for our industry. The US cap and trade system for reducing sulphur emissions, that is, acid rain, has already successfully halved the emissions in the States and very recently legislation has been extended and the intention is to halve it again. It is very useful and I think important right here in Hong Kong, to think first of all about local pollutants. They are very tangible and certainly from time to time here in Hong Kong the pollution that one gets in the atmosphere clearly is there, requiring a solution, and I am keen to see the papers that Christine and her team have written - they seem to have addressed exactly that point.

I am assuming, because you have already had one talk, that I don't need to talk about climate change and I don't need to talk about the principle of what cap and trade is. Instead I will focus on, why does it work? Why does it work so well? Why does it work better than taxation? I think there are a number of reasons, but first and foremost is, if you give people the opportunity to make money out of doing something, you will get far more happening far faster and far more efficiently than you would if you tell people what to do. Governments, certainly our government, have a woeful track record in actually working out what the right thing to do is. They have a woeful track record in picking winners.

I don't begin to know what the right solution to, for example, climate change, is. Almost certainly it will be a lot of different things and almost certainly what those things are will vary hugely from place to place and from time to time. From place to place because different parts of the world have different opportunities. For example, solar power is unlikely to be a major part of the solution in the UK, certainly for power generation, because our peak power generation in the UK is about five to six o'clock in the evening on a cold, winter's day, which by definition is dark, there is no sunshine. By contrast, possibly in Singapore or certainly in Tokyo, the peak load is when the air-conditioning is working hardest in the middle of the working day on a hot day when there is lots of sunshine, so solar energy could well be part of the solution there. Science is working very hard, grappling with these solutions. What made sense yesterday - first generation biofuels - is already a problem politically, and I think the UK government announced as I was flying here that they are toning down their policies towards first generation biofuels. But cellulosic biofuels may well be a part of the solution. All of these fine things are happening. We don't know what is going to be the right thing to do.

But industry will work it out, and they will work it out fast and they will work it out dynamically. As things change, the solutions will change as well. If you have got a cap and trade mechanism, the cap guided by the science that gives a limit on the emissions which broadly we think are tolerable, and then you allow trading, you will allow people who find it difficult - by difficult I mean expensive - to reduce their own emissions from time to time, to trade with those who find it easier, or less expensive, or who are particularly situated on the planet to be able to do these things more cheaply. It just makes sense. And in a few minutes I will show one or two slides which amount to a case study of our own business in Europe, that will give a bit more of a tangible feel about how successful the European cap and trade system already is.

But I think I should throw open a couple of other points. Firstly, I think it certainly makes it a more interesting topic to be very clear that this is a moral issue. It is not just an economic issue. It is a moral issue. It is a moral issue in two ways. It is a moral issue about the use of resources, both geographically - how can it be right for a small proportion of the earth's population to consume the vast bulk of the extraordinary natural resources that we have as a planet, which is the totality of fossil fuels? I mean, I

broadly expect that every barrel or cubic metre or tonne of oil, gas and coal that can be accessed will probably be burnt by my generation, to a good approximation. That is an awful lot of carbon dioxide going up into the atmosphere, and it is being burnt by a very limited number of people.

Now, this is hundreds of millions of years' worth of stored solar radiation. In a sense it is renewable but it is a fuel because it is concentrated in a way that makes it quite extraordinarily useful, and it is worth pausing for a moment to think quite how useful it is. With that resource we manage to do quite remarkable things. I got on a plane in London and I flew, and twelve hours later I landed in Hong Kong. We sort of take that for granted now, but that is quite remarkable. That is the sort of miraculous thing that fuels can do for us. They should be very, very much more expensive than they are and we should be consuming them in a way that values them properly, so, I don't think the oil price is nearly high enough yet! But it is also too easy to say it is wrong for one set of people to consume this.

There is another moral dimension as well, and that is in time. How is it right morally for my generation to consume this resource rather than my children's generation or their children's generation? It is not as easy as saying it is wrong, either. I think the answer lies somewhere along these lines. It can be right for my generation to consume this resource and it can be right for a small part of humanity to consume most of it if, and only if, we leave the rest of the population of the world and future generations with the ability to live within a sustainable energy system. And a sustainable energy system must be - and this is the only bit of physics I think I will leave you with - the net solar incident radiation on the planet. There is the radioactivity that we can dig out of the ground and burn in nuclear power stations, but that is probably quite marginal compared to the net solar instant radiation, which is what nature harnessed and it is what nature harnessed in a diverse way, in a sustainable way, by building jungles. So, there is a nice circularity there. You sort of sense, without any physics, that that is something to do with the right answer. So, if we leave other people and other generations with that level of sustainability then it is OK to consume this stuff. It is going to get consumed anyway, but if we just fritter it away then I suspect that is morally reprehensible.

It is very easy to concentrate on climate change and climate change mitigation and therefore on cap and trade of greenhouse gases, but we think there is more to this area of environmental asset classes than that. The first system, the US sulphur system, is one such, and that has been expanded already by a NO_x system (oxides of nitrogen or smog) so we already have in the US mandatory cap and trade systems for those two local pollutants. There are many other parts of the world where it would make sense to put in place cap and trade systems for local pollutants and Hong Kong, clearly, is one of them.

Water is another area which could well be every bit as big as the whole greenhouse gas issue and it is partly but not entirely to do with climate change. The problem there would be, I suspect, simply as humanity grows, even without the problems of climate change, we are starting to see water being used up in some parts of the world. Lake Baikal in the former Soviet Union has all but vanished, and you have probably seen those photographs of the channel they dug to try to get the fishing fleet out to sea, and they simply couldn't dig the channel fast enough and the boats are lined up as hulks along what is now a sandy route in the desert.

But even closer to my home now, Barcelona earlier this year took its first delivery of a tanker-load of water and apparently they will be receiving a tanker - that is, like an oil tanker, I don't mean a little tanker to fill up a petrol station - but a large oil-tanker full of

fresh water coming about every two weeks more or less in perpetuity because Barcelona hasn't had enough rainfall for years and years.

Australia, a bit closer to here, has got known issues with water. Indeed, in some local catchment areas in Australia have got very small water extraction cap and trade systems in place. And we have started to look at the potential for a water extraction system for the Great Lakes in the States where apparently about twenty percent of the earth's remaining fresh water exists and the surface levels are falling rapidly. I understand there is one entrepreneur who recently got very close to getting approval to put a large pipe into Lake Michigan – by large pipe I mean the sort of thing you can drive a double-decker bus down – and the other end of the pipe was somewhere out in Idaho, where the entrepreneur had bought up a whole load of real estate at about a dollar an acre.

Now, that didn't happen but it throws immediately into stark relief this problem: who owns that fresh water? Who benefits from it? How do you allocate the value that is in that fresh water to the people who have a property right? How do you create that property right over fresh water? And these are the sorts of things that keep my team interested all day, every day, because remember the business of being an exchange, with deference to my other exchange colleagues, is a very simple and almost deliberately dull business nowadays. You have essentially a computer platform and you let other people trade on it. As long as the computers stay up and as long as people think they want to trade, the business of being an exchange just works. So, it is almost like farming. In farming you have a land area and, so long as you look after it and keep it going, you take the money in, and that is, I think, what being an exchange is. So, our job, we think, is to continue to look for these opportunities to get to design property rights, to create property rights that are tradable and to encourage people to trade them.

I will just go into one other area to throw open the debate slightly wider. We have started to list a set of contracts that are essentially insurance contracts. They mirror a particular type of re-insurance opportunity, driven by, so far, wind events in the States. Now, it works for us because we can say with some justification that big wind events in the States are linked to global warming. Now, the science may be quite tentative there, and that's not the point; it just means that I don't have to blush when I say it is part of what we do. It is really about making money for us but it is also seizing the opportunity to develop this asset class.

It is fascinating that the insurance sector is really the only part of the global financial system with no easy, efficient mechanism for risk transfer, and that's just a fact. The mechanism for risk transfer, or one of the main ones, still exists in London. It is called Lloyds – a lovely building and they get lots of people wandering around on foot – and the mechanism for risk transfer is contained in large paper files that they hold in leather envelopes. It is so antiquated it is unbelievable. All of that could, to our mind, go onto an electronic exchange-based platform.

So, we have a subsidiary that has listed insurance contracts. They are called binary futures, which means there are only two outcomes: either they pay out or they don't. And if, say, during this current hurricane season in the States there is a \$20 billion wind event, by which I mean the total insured losses within the States from a single event exceeds \$20 billion dollars, then the contract with that strike price pays out and, if there is no wind event of that size, you get zero. Now, that is currently trading, not as well as we would like, but it is trading at something around 30 percent of its face value, suggesting roughly that one year in three you are going to get a \$20 billion wind event. And people can buy and sell that and they can do it on screen and regrettably we are

all quite excited looking for the next hurricane, not because we like to see the damage, but I really would like to see what happens when, for the first time as the storm develops over the Atlantic and as it gets named and as it swings in across the Gulf of Mexico, to see real price movement and price discovery and the opportunity for dynamic hedging. And as it swings north and starts to look dangerous, the price peaking, and then suddenly, when it vanishes off and hits some jungle in Mexico, the price falling away again. That is a typical part of a typical hurricane, and dynamically hedging that seems to me to be an opportunity for exchanges.

I think that is probably sufficient of the big picture, throwing open the scale of the opportunity. I haven't really talked about scale, so here is a little bit. The main cap and trade system for greenhouse gas trading currently is the European emissions trading system. Europe covers slightly over four billion tonnes a year, and the legal system covers roughly half of that, around two billion tonnes a year of emissions, which is driven by most of the largest point source carbon emissions. That is what is defined by the legislation. So, that is two billion tonnes a year of baseline. Last year the market turned over the baseline about once, so we had about two billion tonnes of trading volume. A tonne of carbon is now slightly more than 25 Euros a tonne, so you have got two billion times 25 Euros last year. If this was a commodity, an agricultural commodity, you could call that the crop size, like the crop of wheat in a year.

Now, a mature commodities trading market turns over much more than one time, maybe eight, ten, twelve or more times the crop in a year. So, there is easily the potential in principle for that one market to turn over significantly more than one time, just as it matures. And as it begins to get liquid we are starting to see in the European system the real trading patterns that you would expect of a market that is maturing. So, we see a couple of things. We see in some of our big volume days patterns of different sets of options with different strike prices and futures, strips, going out into the future which suggests you've got an investment banker out there who has successfully persuaded a client to take on a significant hedging strategy for their carbon exposure for the next five years or more. We as an exchange don't know this – but as an investment banker it looks like this to me.

It is interesting when looking at “the next five years or more” that we have put up contracts for carbon trading that go beyond the current legislation in Europe. Phase II of the European system runs during the Kyoto phase up to 2012, so that's what's legislated for, but what is clear is that there will be something beyond that, and the market is sufficiently mature that customers have asked, and we have put in place, contracts for 2013 and 2014 and you can now trade beyond the current legislated system.

I am going to put up a couple of slides [See: www.civic-exchange.org/eng/upload/files/080708_CarbonTradingII_ppt.pdf]. (Slide 1) This is really by way of a case study to show something about the European system itself and our role within it. We are not The Exchange: we are An Exchange but we are currently the dominant exchange in this space. Depending on what you mean by an exchange, there are anything up to nine platforms out there in Europe creating products for trading in this market.

(Slide 2) Now this is another market-based quote that I think is very compelling. It is easy for me to stand here and say this is terribly important, and it is terribly important for markets and for exchanges, because this is my business. But, when you have got essentially the head of the Commodity Futures Trading Commission (CFTC) in the States saying in a Financial Times interview that they think greenhouse gas trading is

going to be the biggest commodity market in the world, then that is quite simply the best advertising that we could have.

One other point: when I say that there are nine exchanges in Europe working on this, I think that is an important consideration for Hong Kong. Once you have a system that is legislated then it is open to competition. Any exchange can put up contracts and that is the business of being an exchange. So, once you have legislation in place it sort of doesn't matter, and there is no reason, for example, why a system to reduce local pollutants here in the Pearl River Delta region and extending to Hong Kong shouldn't be actively traded on our platform in the States, for example. Now, it doesn't often happen. It is more likely that local markets will develop and local trading will be more compelling. But the thing about being an exchange is that it is relatively cheap to put up a contract, and then you have to farm it and make it work for your customers.

(Slide 3) What we have in the European Climate Exchange is very simply futures and options based on the European system – those are EUAs – and the Kyoto system - essentially CERs which are issued under the clean development mechanism. That's what we have.

(Slide 4) This is really the only advert, I guess, in the whole of this. We have been very fortunate to have worked strategically with our partner, ICE Futures, which was the IPE in London, which was a strategic move on both our parts. We thought that the carbon market particularly would end up being a market that is an integral part of the fuel mix, and the IPE, where the Brent oil contract was traded, did seem to be the right platform to have an existing set of a couple of thousand eyeballs looking at the screens every morning. When you are developing something brand new, the business of actually getting people to look at the screen, let alone trade on it, is a big investment and a bit of a headache. So, by going directly and working with ICE, so knowing you have the whole of the oil market looking at your screen from day one, I think is an important part of why we have ended up with the most significant market share of trading.

(Slide 5) And so this is what you actually see. I probably should have tried to set it up so I could do this live, but unfortunately at the moment it is not a 24-hour market. There is no reason in principle why over time it doesn't become a 24-hour market working the whole time around the planet.

The other reason I think that we at the moment have captured the vast bulk of the volume that is traded is to do with the liquidity which has now developed. If you look at the bid/offer spread for the December 2008 contract on the top line there, you see that there is a 0.4 Euro spread now, and that is normal. In fact it is slightly disappointing. I should have done a screen grab where it was tighter than that because very often it is tighter than that, and it actually means at the moment that it is cheaper in the total round-trip cost to trade on this exchange even if other exchanges offered this for free simply because the bid/offer spread is so much wider. But that is in the nature of exchanges. Once they start to get liquidity, particularly commodities exchanges, once they start to get liquidity it is a bit like a black hole and it sucks it all in.

(Slide 6) We start to get an evolution of prices. We have, as I say, two contracts. They have usefully different characteristics. They trade a little bit in line with each other but not quite, and we start to get spread trading between them. The CERs in particular have dynamics that go outside of Europe. There are compliance certificates, in particular for Japan and for Canada, but Canada in particular. What with the huge proportion of the issuance of CERs - something like 60 percent so far - that comes out of China and the significant level of demand that we have seen and expect to see from

Japan, it seems to me eminently reasonable that there should be active trading of that in the Asian time zone.

(Slide 7) You get interesting ways in which the price dynamic is correlated with the rest of the fuel mix, and it is a bit of a complicated chart, that, but what you can see is at the moment, the European price of carbon, which is the light blue line, is most linked to the German power cost which is the red line, and less to do with the fossil fuels. And that is because that is a market working, and what you have is that the cheapest way at the moment in Europe to cut European emissions overall is to switch your source of electric power in Germany from carbon to natural gas. So, from time to time, as the price of coal and the price of natural gas in Europe move and you know how much electricity you generate and you know how much more carbon is emitted from a tonne of coal burning than from a cubic metre of natural gas, you can put in place all of that mathematics and you get essentially the trading price of carbon.

It needs to move on from there quite significantly. We need to go beyond that and raise the price of carbon until such time as it really becomes viable for industrial Europe to start spending money on actively reducing its emissions. That will require a higher carbon price. And a quick digression on that: you want the carbon price to rise to be the cost of abatement. That is what this chart is showing you, because the cost of abatement at the moment is that German fuel switch, but you want it to be doing more existing things than that like actually putting bits of kit on top of chimneys or pumping carbon dioxide into depleted oil reserves, all of which we are told are much more expensive at the moment.

But there is a particular point that the current legislation doesn't provide, which I think would get us there quite quickly, and that is at the moment, within the Kyoto system and Phase II of Europe, you have got very, very few years left to reap the carbon value of your investment. I mean, if you start today, for instance, building a wind farm, you are not going to get delivery of your wind turbines for eighteen months to two years and then, if you could put them up really very quickly, you might just get away with two years' worth of renewable energy with their carbon credits before the system is over. So, for major infrastructure investment, what you need and what you saw, for example, in the US sulphur programme, which had a 30-year initial life, what you need is the opportunity for industry to forward sell a strip going out twenty or 30 years of the carbon value. Take that in essentially as an extra equity investment into the project funding of this. So, we need a much longer system out there in Europe and in the world.

And I don't think it matters what the system is, and this is quite important. In fact, it is almost the theme of this talk if anything. In the words of that great group from the 1980's, Bananarama, "it ain't what you do; it's the way that you do it". Remember, that's what gets results. What I am saying there is that we don't know what interest rates are going to be in the future - nobody does - long-term in the future, but we have a system, we have an understanding of how those interest rates get set from time to time which allows the futures market to exist. Policy changes from time to time, so interest rates as they are set change from time to time, but somehow the world goes on. And yet we hear on the carbon price people bleating about "it is too volatile". Industry manages to work very well with highly volatile fuel prices. They manage to work very well with highly volatile other costs, employment costs. Everything in real life changes, so why can't the carbon price?

And the other point is that science tells us roughly what the cap is now, and that may change from time to time, but that is really only as bad as people deciding from time to time what interest rate to set. So long as you have got a system that is out there for a long time, you can have a futures market and you can have people making investment

decisions based on that. You don't need to have exactly the right answer so long as there is a broad definition of how it might change in time.

(Slide 8) These are the systems that are either out there or are being talked about. I think one of the most useful things, and really the only point in that slide, is that there is the opportunity to have a single, global currency. We are going to have different regional systems, and that is fine and that is probably healthy. And the politics in different regions will mean that we have slightly different rules, slightly different prices. Again, that is not too bad. It is only as bad as having a different price for Brent crude as for West Texas Intermediate, for example. They are slightly different oils, slightly different prices, different delivery points, but it is still crude. But, with the CER, so long as that is a deliverable certificate within each of those systems, then you have a natural safety valve on price and a much more natural one than having an artificial cap which, for somebody that believes in free markets, I think is a poor policy move.

(Slide 9) Again, just to put a scale on it, this is an independent observer, but quite a well-known one, giving a view on the total scale just of the carbon market. And then you have got the opportunities presented by local pollutants and on insurance and on water and that begins, I hope, to give you a bit of a flavour for why this is a really important market. I will leave it at that point.

Ms Christine Loh: Thank you very much. I think your stunned silent audience is thinking about dynamic hedging of typhoons here, and also thinking about how on earth do we create these new products for not only emissions, which we now see as operating, but also the emerging markets for electricity, for water and for perhaps a whole range of new environmental products. You talked to us about your efforts in producing or creating new products to trade. Maybe you can explain how that process goes on in a minute. You talked about fuel mix and how the price for carbon is going to be linked to abatement cost, how these things are uncertain but they seem to be all working reasonably well. And you talked about when the price of carbon will be high enough for there to be perhaps a lot more attention.

Now, of course, one of the issues that we didn't have time to discuss is over the course of, let's say, the next few years, how the world and how governments will be looking at where we should set the cap, so to speak. Right now these discussions are in terms of where the Kyoto protocol, when it is renegotiated for the future climate regime, the whole discussion is about the concentration in the atmosphere, the degrees of earth warming that will be allowed, and then the science coming in to say "what we are talking about is just far too high; it is going to have to be much lower". I suspect all of these things are going to play into the financial markets about where we have to set caps or where we have to tax people. So, these are obviously big, big issues that are coming quite soon and are going to hit us all. Maybe rising oil and food prices is just the prelude to this.

So, to kick off our discussion may I invite Philip also to come up? We have got two visitors to come and talk to us just to help us kick off the discussion. Philip Napier-Moore, as I said earlier on, has also flown in from London. He is with Mott MacDonald. He has handled many types of energy and greenhouse gas emission projects. I thought he could talk to us about what are the new products that are coming on stream. And we have Kevin Lok, who has joined us from Beijing. Kevin, I understand you have had considerable experience in looking at CDM projects, so perhaps you could give us some reflections on what is happening in China. But Philip, could you start first?

Mr Philip Napier-Moore: Well, that was a really stimulating presentation and by accident I got to watch it without a crick in the neck from down there, so that was good!

To add to that, and I think it is quite a complementary subject really, we have so far been talking about the trading of obligations, particularly within the ETS. Essentially you trade an EU allowance: you are trading an obligation to reduce carbon. So, the flip side of that is you have to have projects if you are going to commit to reduce carbon. You have got to actually have a physical, technological way of reducing emissions if you are going to forego an allowance, or else you have got to have a reason why you are not going to produce those emissions in the first place.

So, working for Mott MacDonald I very much come from a project development perspective, the nuts and bolts of how you go about reducing emissions, particularly in the power sector, which is where I have been working. I have been asked to add a few thoughts on new products and new markets. Now, you could say the whole carbon market is a new market. Looking at it a bit closer, it is a very young market. It is rapidly evolving and there are a lot of changes, particularly as we come up to the deadline of 2012. There is quite a lot of innovation that we are seeing in order to get projects through on this short timeline. If we are talking about new products and new markets, we could talk about innovations on the supply side. We could talk about innovations on the demand side in terms of credit off-take. We could talk about market support services, things like carbon market derivatives, insurance products, indices, brokerage, validation. For me looking at the market from a project perspective, these are all sorts of support services to enable the projects to happen. So, I am going to talk from the project perspective, since that is the area where I am most familiar.

Credit supply is one area where we might potentially see innovation - with project owners breaking ground through new products and new markets. There is really very limited scope for innovation right now without a long-term carbon, however. The projects that are currently coming through under the CDM really have to make a pay-back in a very short time, as Matthew was talking about. A lot of the projects that can make a very quick pay-back through having potent greenhouse gases involved have been exhausted, so we are talking about basically methane and CO2 now, being the kind of projects where we are basing greenhouse gas reduction hopes.

In the methane sector specifically, where you probably now have the most opportunity to make a quick return prior to 2012, the projects are generally quite small and there are a lot of buyers chasing them. It is a good time to be a project developer in the sense that it is very much a suppliers' market. The point is that, without the long timeline for heavy investment and infrastructure, there is not as much scope for innovation. But that in itself drives innovation in the credit off-take market, so I think if we are seeing anything in the way of new products, we are seeing carbon credit off-takers come up with innovative models to try and persuade developers to contract with them and to try and structure a deal that can make a quick return. So, we are seeing, for instance, off-takers come with packages of debt or equity and turnkey equipment supply or, in some cases, all of those three together. There are some potential bio-gas projects in Thailand where they have had ten credit buyers come to them with various structured offerings involving all of these things in order to attract the credits that they might be able to provide with their product.

The other area where I think we are seeing innovation up against the boundary of 2012 is through the voluntary markets. This can be used as an alternative way of selling credits apart from through the CDM, and it is already being used in a few ways, in fact. You can purely go through the voluntary route instead of registering a CDM project. Obviously the prices are lower for that, but you have a broader range of technologies that you can apply. If you think there is going to be some delay in registration, you can look to get voluntary credits prior to registration, so perhaps your projects are going to be up and running for a year before you even manage to get through the registration

process and you can sell voluntary credits in the interim. Or you could look at voluntary markets, particularly if you have, for instance, a gold standard project. You could look at voluntary markets for post-2012 as a hedge against a lack of an on-going CDM market. So, we are seeing on a lot of projects we are involved with developers looking at this new and growing market in parallel to the compliance market as a complementary marketplace for their carbon.

We are also seeing a greater emphasis on local service delivery as another innovation in credit off-take, with international banks working through local banks to offer a complementary service and to try and get projects off the ground more quickly.

Going back to the issue of our voluntary markets, there is no standard price in the voluntary market. The price that your credits will attract will really depend on what kind of case you can make for the sustainability credentials of your products or of your project. So, with voluntary markets and with the new regional markets which may not have consistent standards, I think this idea that the CER can be a tradable commodity between all regional markets is really good and that should be what ideally happens post-2012. But, in the worst case, it may be that different standards apply across different markets and so you could see a tiered market with different prices for different kinds of projects and different regions, and a bit of a “beauty contest” for the most sustainable carbon project in order to get the highest prices. So, those are the kind of considerations that apply to the innovation of using the voluntary market as a hedge.

I hope that’s a helpful summary of the trends we are seeing across our projects in terms of new models for off-takers trying to secure credits in an increasingly competitive market.

Ms Christine Loh: Thank you very much. Kevin, can you share some insights with us about CDM in China?

Mr Kevin Lok: The CDM market mainly started in the year 2005 but we have seen a surge in CDM projects since then, and there are thousands of projects in the CDM pipeline right now. China started a bit later compared to India and Brazil but has caught up very quickly and actually right now it has the largest stream of the CDM market now, accounting for about 70 percent of the CDM market.

Project developers in China are required to work with a local project owner. The project owner must be a Chinese company or a Chinese-controlled enterprise. So, at the early stage a lot of investors worked with project owners simply as a CER off-take buyer and they signed emissions reduction purchase agreements with the project owners purchasing CERs at a price of about US\$3 or US\$5. Later on the Chinese government realised that they needed to protect the owners. Therefore they have set a CER floor price starting currently at 8 Euros, so project developers are only allowed to work with the project owners only if they are willing to pay more than 8 Euros per tonne of CO2 equivalent or per unit of CER.

Over the course of the past two to three years we have seen several issues or stumbling blocks, including an over-estimate of CERs generated from emission reduction projects, for example, from landfill gas capture projects. At the time of monitoring they realised that only about 30 percent of CERs are realised compared to the CER projection written in a project design document.

Another problem with CDM projects in China or other countries is that a lot of CER buyers sign the emissions reduction purchase agreements with the project owners and they assume that the project owner will handle the entire CDM process. Therefore they

would overload the importance of the monitoring process, and at the end of the day this is one of the reasons why some of the project developers are under-delivering the CERs.

Carbon Capital Markets, the company that I work with, has an integrated approach to project development. We have our own in-house trading desk and we have our own CDM monitoring team, CDM management team, because we see the importance of actually working with the project owner from stage one, from due diligence to project design document preparation and, very importantly, the monitoring of the emission reduction projects. And towards the end of the process we would work with the CDM project owner and advise them on when to sell their CERs and for how much they should sell their CERs.

Instead of purchasing only the CER or just signing the purchasing the CER's from the project owners, for a lot of projects we actually invest in the underlying projects. That means we would set up a joint venture, for example in China, and we would be partners in developing that project. And I think it is very important because it makes more sense to be participating in the project and treating the revenue from CER as supplementary revenue and also, by participating in the underlying project, we have better control of the CDM project.

Ms Christine Loh: Thank you very much. I am sure there are lots of questions out there. I have a whole list myself but I will restrain myself because I think the audience has many questions.

Ms Ciara Shannon (Climate Change Business Forum): Kevin, this is a question to you. You spoke about the problem of acquiring and monitoring projects. So, we all know about the bottleneck issue and there are still 12,000 projects still to go through the CDM process. Is it a problem with verifiers not being trained? Is that the capacity problem?

Mr Kevin Lok: Having worked with several certification companies, including DNV and SGS, I think they are very competent. However, it is mainly because of the volume of CDM projects and that they are having difficulty in providing sufficient human resources. Also because the carbon market itself is a very hot industry, there are a lot of problems with retaining quality employees within the certification companies. So, I don't think it is a problem with the certification companies.

Ms Christine Loh: It seems to me that we have got three types of issues. We have got the end-game of the process itself to extract the credits from the CDM. And then right at the other end it is more conceptual, the creation of the markets, the creation of products. At some stage, of course, the two come together. In the middle we have the innovations from project managers to insurers to all kinds of people up and down the supply chain to introduce innovation so that we can smooth out the carbon market. And of course, Matthew, you didn't talk only about carbon. Carbon, perhaps, is going to be the big, global product. You also talked about the importance of local environmental issues and how trading could be used to solve sulphur and water and other products which are obviously not going to be globally traded as such.

From your point of view how do you really see the relative opportunities for an exchange between carbon, which is I think what more people seem to be interested in is the universal CER because the impression is this is the product, will be traded, and somehow the more localised potential products of sulphur, for example, that that is somehow a much less interesting product. Do you agree with that, or do you think that actually there is great potential too for the local products?

Mr Matthew Whittell: Well, I think there is great potential for the local products as well, and to cut to the immediate point, what you can do as an exchange is design your contract so that it is still worth while trading regardless – and there is obviously a slight *caveat* to this – but regardless of the size of the market. What do I mean by that? Well, you can choose the size of your contract and you can choose, therefore, the price per contract and so you can design it so that there is enough frictional cost to make money for the exchange while not making the frictional costs of making buying and selling so great that people don't trade at all.

For example, the sulphur market in the States has a very, very much higher price per tonne than the carbon market, a couple of orders of magnitude higher. So, you can have a much smaller contract size and it still makes sense to do the buying and selling. So, that is actually quite a technical answer but the business of being an exchange is precisely trying to grapple with those issues.

I have got an exchange bias but I want to separate that from a trading bias. I think trading is a very, very useful tool in the armoury. Whether or not it becomes an exchange-based approach as opposed to an ATC approach is just the way markets typically evolve. Certainly at the moment for carbon, and indeed for any of these asset classes, the main job for all of us is to make sure the overall pie keeps growing at the sort of rate that it does.

In the ETS at the moment roughly half of the trading volume happens over the counter, half of it happens on the exchange. So I have been asked “Does that mean that over-the-counter is our competitor, given that we sort of dominate within the exchange base?” Absolutely not. There is an almost symbiotic relationship between over-the-counter trading and exchange trading and I think both benefit from each other. You are going to have telephone-brokered trading in order to start to get people to think about the detailed ideas, the sorts of hedging strategies, and then as an exchange either those strategies actually get worked directly through the exchange or there is some set of options and futures which an investment bank dynamically hedges from time to time through the exchange. So, smaller markets are likely to start off mostly over the counter and then, as an exchange, we will typically look at those, observe those markets, and create exchange-traded products at the time that the customer base seems to suggest to us that they are ready for it.

There are probably a couple of other things. There is an example there in Australia. We just announced last week that we took 25 percent investment in a, essentially, mirror-image business model to our own in Europe. You must be aware that after the regime change in Australia, the first policy decision was to ratify Kyoto, and within six months of that we now have trading in carbon in Australia. This is before there is actual legislation there, but again it is a bit like in Europe us trading in 2013 and 2014 carbon. It emphasises the point I am making about not having to tie down the detail of the future legislatively too precisely.

You will get trading as soon as you get human beings meeting together with the same rough ideas about what they want to do, and I can think of nowhere on the planet that that resonates more as a concept than in Hong Kong. If you go back through history the West broadly could not hope to trade broadly with China. You need to have a point that ships can sail to and a point that product can arrive at and the underlying financing of that, and that is in a nutshell a lot of Hong Kong's history. So, you don't need to tie down the legislation. People will come and trade. Exchanges then build up on the back of that trading as and when it becomes commercially cost-effective for people to trade

in a uniformed, commoditised instrument rather than in bespoke quantities and bespoke shapes.

Ms Rachel Thurstman (Clinton Global Initiative): Thank you very much for the presentation this morning. I have a broad question for the panel and a specific question for Mr Whittell. We talk a lot about having markets rather than governments solve the problem but we sometimes forget that the governments have to create the markets. My broad question is, how would you like to see the governments create the markets better? At the last workshop we talked a bit about, the critique of the year, PNETS, and there were some brilliant bits to it, like allowing industries to trade tangible credits across different industries, and some less brilliant bits, like handing out all the permits for free so they didn't have much of a value for the first couple of years of trading. So, what would you like to see governments think about more pro-actively when creating these regimes?

The specific question for Mr Whittell has to do with water. I understand the cap and trade concept with carbon because clean air is a public good and you want to cap the negative public good, which is pollution. But with water you have got clean water being the public good and you don't want to minimise; you want to actually maximise the distribution, not just where the money is in the world, but really to everyone. So, it is a different public policy goal, and I just wondered how that would work from a market perspective.

Mr Matthew Whittell: I had better just start with your second one as that is specifically to me, and then I will give my say on the first one.

Water: there are actually two things you need for water. One is about volume and the other is about quality. There is any amount of water out there in the sea. It is just not awfully drinkable, so what you need to consider is both the amount and the quality of it, so for quality, read fresh water. You need to have some sort of index and you can design, based on science indexes, potentially tradable indexes based on water quality.

For the volume, I am not sure I quite agree with your proposition or maybe what I am saying is just slightly different. I think it is very simple because I think it is quite similar to the climate change issue in the following regard. There is fresh water around. Some of it is quite visible and I guess, with the right sort of equipment and the right sort of boats, you can broadly map the volume of the Great Lakes and at least have a pretty clear idea how much there is and therefore what sort of extraction rate you can get away with. But in some of the large aquifers, nobody is really quite certain how much is down there and how long you can keep pumping it out of the ground before it fails.

So, there is both some level of science you can apply and some level of guesstimate, a bit like the parts per million of greenhouse gases in the atmosphere. But that doesn't mean, again similar to the climate change point, that you don't have a go. You have a go at setting what you think the right extraction rates would be for any particular system.

Ms Christine Loh: I think, Matthew, it is not just the extraction rate, actually you can base it on current usage. You could say that this city is using X volume of water this year and the next city down-river is using whatever, and we want to minimise the use of water, and you have a trading scheme to see how water could be reduced. So, I think that is your way and there is this other way. It is already happening: I think the first water trading system is somewhere in the US amongst a fairly small area and then you just advised us today that trading systems are starting in Australia as well.

Mr Matthew Whittell: At a very local level, yes.

Ms Christine Loh: At a very local level, and the US as well is on a very small scale. But I think this is where things are going to go and this might be extremely useful for an area where there are serious droughts and in areas where you would want people to conserve water and invest in water technology, water conservation, a lot more seriously.

Mr Matthew Whittell: On the second question, how to make the markets work better specifically for greenhouse gases for climate change mitigation, I will say three things quite briefly on that. The first is use markets not tax. Now, those overlap and the reason they overlap is this idea of how you allocate emissions permits and, if you give them out, as Europe did in the initial phases, that is not a tax. If you auction them and if the proceeds of the auction go to government, that's a tax. Now, even that, even a tax, might be alright if governments knew what to do with it, (a), in the broad thing, and (b), if they specifically said they were going to use those proceeds to do climate change mitigation stuff. But governments aren't very good at that. Certainly the UK government is not very good at that. The treasury in the UK absolutely has a policy that it won't hypothecate revenues to anything in particular.

Now, what the cap and trade system does is, where there is a cost to the economy as a whole of mitigating climate change, that cost is entirely driven towards doing climate change mitigation stuff. I just think it's a better way of doing it. That's point one.

Point two is long term. Set up a system, say it is going to run, ideally, for 30 years or more, and then industry can start making long-term infrastructure and capital equipment decisions knowing that they will be able to use markets to extract today the cash value of the carbon savings.

And the third thing is use CERs as the global deliverable currency in every regional system because, unlike local pollutants, the climate change science is telling you that it doesn't matter where you save a tonne of carbon, so long as a tonne of carbon is saved. So the whole point is that there is a cost to the global economy of the problem, so let's try and reduce the cost of solving it and, if it is more cost-effective to reduce it outside of Europe or outside of Japan or outside of Australia, then let markets do the thing that they are most efficient at.

Ms Josie Tso (UNDP, China): I want to ask the speakers, because of the various results of those carbon projects and the quality, one of you mentioned the UN FCC's gold standard. Is that a rating system that all traders look at and refer to as credible and to observe, like Moody's for instance?

Mr Philip Napier-Moore: The gold standard, rather than being a UNFCCC initiative, was proposed by a group of environmental NGOs originally. It both applies to the compliance market: under the CDM you can have a gold standard CER; or you can have a gold standard voluntary market credit, or VER. So, in the case of the CER, it goes through the normal UNFCCC procedures and then has to demonstrate additional sustainability criteria. In the case of the voluntary market it could be potentially a bit broader.

And then the second part of the question was the rating system. You do see a consistent premium in terms of price for those gold standard credits, and there are a couple of voluntary standards which apply different criteria, but I wouldn't say there was a rating on sustainability of projects beyond that, beyond the price premium you get for

a gold standard VER and therefore what that says about how useful for corporate social responsibility purposes that is credit is.

Mr Matthew Whittell: If I could add a little bit more on that, it is partly a sign of how mature and how well developing the carbon markets are that we are starting to see things like ratings and different types of quality review on the underlying instruments coming through. I think that is a very healthy sign even though, from an exchange perspective, our own business mission is to commoditise and make everything exactly the same so far as possible. We want a tonne to be a tonne to be a tonne. But having the ability for different types of buyers to discriminate and ultimately discriminate on price, and I would reinforce the point that a good gold standard project does seem to get a better price.

But there is one note of caution on this that you begin to see coming through in public policy in a variety of places. I think you need to distinguish between two slightly different but overlapping things. One is climate change, which is a little bit dull and is focused on reducing the amount of emissions. And the other is poverty, broadly, and aid. Now, there is a lot of overlap that the whole climate change mitigation industry is usefully doing to deliver technology transfer and development programmes into regions of poverty. That is very good but they are two separate things. We have to solve poverty and we have to solve climate change, and be careful that Western governments don't try and make one dollar two things. We need two dollars out of them.

Ms Leena Gohen (Clifford Chance): This is a question for general comment by the panel, but Philip mentioned the voluntary markets just now. I can see the compliance market, which is the bulk of the carbon trading market, that is driven by legal and compliance requirements. The voluntary markets, I see that as mainly corporate responsibility or NGOs buying it to absorb carbon credits. How do you see the voluntary markets developing? What is the role of the financial market with voluntary markets?

Mr Matthew Whittell: Shall I kick off? I haven't talked about half of my business. Half of my business is based in Chicago and in the States, in the absence of federal leadership and guidance, we have built a voluntary system. And the whole of the Chicago climate exchange is technically a voluntary system but it can be voluntary as well as legally binding, and that is what it is. It is not binding by legislation but by contract. In fact, we say it is like marriage: you don't have to do it, but when you do, there are consequences!

It is too easy to say that, relative to the EU ETS, the voluntary markets are small. I don't think that's right. If you look at the size of the Chicago market, the size in terms of emissions of the companies and municipalities that have joined the Chicago climate exchange now is significantly in excess of 550 million tonnes a year. What that means in context is, if this voluntary system were a country in Europe, it would be bigger than any country in Europe, and that has already come in, into a voluntary system. And there will continue to be a role for voluntary systems to cover that part of emissions that is not covered by a mandatory system, both in the States in the future, but also in Europe. Remember only half of the total problem in Europe is currently covered by a mandatory system.

Mr Philip Napier-Moore: Yes, I think I totally agree on that. The future role of the voluntary market is really going to depend on where we see the compliance market going and how many gaps are left by whatever compliance market emerges out of the up-coming negotiations. Particularly, there are projects that are hard to monitor in real

terms. Projects can be spatially or geographically diffuse. In the instances it can be hard to measure exactly how many tonnes of CO₂ or methane that you have actually reduced and given that it is hard to include such projects in a compliance scheme even with statistical sampling techniques. Those project examples might continue to be part of the voluntary market, that are more driven by consumers or companies that recognise where there is a realisable benefit but to whom it is not critical that the carbon benefits are sufficiently concrete and quantifiable to include in a compliance scheme.

Mr Kevin Lok: Yes, I want to echo Matthew and Philip. I think that the voluntary market has a very important role to play as we don't have a global emissions trading system or we don't have a cap and trade system around the world. So, there is a role for the voluntary market. Over the past couple of years we have seen a better standard for certifying voluntary projects and this is the other reason why, because in the past there have been issues associated with voluntary projects and their reputations but, as standards like VCS or VER+ standards develop, I think a lot of credit buyers have more confidence in voluntary markets. This is another reason why the voluntary market has grown quite rapidly last year.

Mr Matthew Whittell: But don't let the politicians use the presence of voluntary markets as an excuse for not doing the right thing. We need the mandatory markets as well.

Ms Christine Loh: Now, what I am going to do is I am going to ask those who have a question to ask your questions all in one go because we do have the Lord Mayor of the City of London joining us very shortly. So, I think we also want to give him an opportunity to say a few words to us. So, if I can ask you to show your hands and then ask your questions together.

Mr Louis Chan (Organic Waste Technologies): I have been personally involved with a couple of methane gasoline projects and I agree with all the bright futures and expansion of trading. Now, given the good trading platform already established in Hong Kong and also Asia being one of the biggest, if not the biggest, producers of these credits, it appears to me it makes sense to have a trading platform in Hong Kong. My question is, does the panel agree with that, and secondly what do you think are the top two or three critical success factors to establish this platform and drive the competition up around Asia? Thank you.

Mr Bo Chung (University of Hong Kong, interning with Carbon Carrier Asia): I would like to know what are your views as to what is going to happen post-2012? As a student just learning about the carbon markets, it seems as though this time frame has been some sort of an experiment, because this is about climate change. And if in 2012 they see that carbon emission trends have not been changing and every country continues to emit the same amount of carbon, what do you think is going to happen to either the cap and trade or the voluntary system?

Mr Glenn Frommer (MTR and chair of the Sustainable Development Committee for the International Association of Public Transport, Brussels): A simple question: how do we get CERs for public transport?

Ms Christine Loh: That is a very important issue. Are there any other questions that you would like to ask? If not, then there is a break at about eleven and our panellists and presenter will stay for that, so for those of you who are dying to bee-line in and ask your favourite question, do feel free to stay afterwards, and our guests will be very happy to take your questions. Matthew, can I ask you to pick off those you want to address, and then perhaps the rest of the panel?

Mr Matthew Whittell: Yes, I will rattle through those. I will start, actually, on the environmental delivery point. Absolutely, we have to demonstrate we are delivering environmental results and the reason for that is that there is a cost which is being borne by consumers and voters, and they are not very good, and the media is particularly poor at distinguishing between the present costs of grappling with the problem and the future costs of not doing anything.

So, if we don't actually deliver in real hard and fast terms on reducing emissions, I suspect consumers and therefore voters will give up on supporting governments in their current approach, which is using particularly the cap and trade systems, and they will go for something else. Anything else, I suspect, will be less effective, less efficient and more costly, but that is how politics work.

Is it delivering? Well, the fascinating thing is that it is already absolutely delivering. A couple of quick points to note: phase I, the trial phase, the experimental phase of the European system, even though it was over-allocated - and, as an aside, thank god it was over-allocated - and therefore the price ended up essentially at zero, it put in place sufficient to capitalise - I have seen various reports of up to a hundred million tonnes of carbon savings, it is already doing more than that. And then think about the CDM system and remember that what is happening is that the carbon part is just a small part. It is like an equity tranche in the whole of the project. And the value of one tonne of carbon can capitalise infrastructure spending, basically debt finance funding, of a multiple, perhaps ten times that. And so you think about the amount of money that has already been delivered into the projects that have been talked about, and the other members of the panel know more in detail than I do, but that is a vast amount of money already put into real capital expenditure with real delivery.

A trading platform in Hong Kong? Yes, why not? But it is possible, but remember that nowadays an exchange is just a computer. It is out there. Anyone with Internet access can log into the ICE platform and start trading, so it is really a question of social hours. At the moment most of the trading takes place in the European working day and the reason for that is not about supply, a lot of which does come from Asia, but about most of the demand at the moment is coming from Europe so that is why it is naturally the place for trading. But I see no reason why you shouldn't get trading in it and either it will happen on a local platform or it will happen on a European platform with extended trading hours. It is just the same thing.

Transport: absolutely a key part of the process, and indeed the European system is beginning to grapple with that because phase III, which is currently under negotiation for the years post-2012, is indeed focusing on transport. I mean, aviation is coming in probably during the last year or two of phase II and then looking at shipping, but transport is the next big sector to be involved. How do you get CERs for public transport, you will need to ask the project developers how they can help you approach the UNSCCT.

Mr Philip Napier-Moore: We have a lot of people designing transport systems here in Hong Kong and I am sure they would love to see some CDM credits being realised in that area too.

Ms Christine Loh: And we now can, now that Hong Kong is a part of the China CDM system. If we have the wherewithal to think about how to capture that, perhaps there will be some opportunities.

Mr Philip Napier-Moore: As a short answer, given the lead times on developing most big transport infrastructure projects, it is really going to have to be something that is

dealt with post-2012 now. Potentially, if we had certainty late next year on where the market was going, you could start developing a transport project under that model. So, there is one constraint arising from the general regulatory framework and the lag of time on that.

And the second constraint relates to the methodological issues of, how do you prove exactly what you have displaced? This has been a subject of on-going debate. If we are talking about a mass transit system that leads to modal shift, with people shifting from cars to public transport for example, there is a demonstrable reduction. It just becomes about quantifying it. So it is about credible ways of establishing a baseline and monitoring exactly what is realised in terms of emissions abatement as a direct result of that project and not as a result of other events. So, there are some technical issues as well as the current lack of a sufficiently long-term regulatory framework.

Mr Kevin Lok: Final comment is probably about post-2012, we know that, regardless of any agreement in Copenhagen in 2009 or not, the EU ETS will continue and there are several domestic emission trading schemes that have already been evolving in several states in the US and Australia. So, we are still confident that there will be an emissions trading scheme.

In terms of CDM markets, we are at a crossroads right now because of the potential restrictions on CER imports so we are monitoring closely the progress of the negotiation going on.

Ms Christine Loh: Thank you very much. We are extremely fortunate to have the Lord Mayor of the City of London, David Lewis, who has just arrived. We feel very close to him already because we know he lived in Hong Kong. He has also worked for many years as a partner in the well-known law firm, Norton Rose, which has a big office in Hong Kong. So, now that he has transited from the role of being a lawyer into a public role, working for the City of London, and obviously the City of London has been promoting very hard carbon markets and the expansion of carbon markets, we hope that he can share a few words of wisdom with us and also tell us a little bit about how London is going about expanding these markets.

Of course in Hong Kong we would like to think we are a competitor, but we are not yet, but surely learning more from London could perhaps spur us on into working more aggressively to realise what some people in the audience have thought about, which is how Hong Kong can perform at a much more aggressive pace in developing a carbon and other environmental products market here. So, we would like to welcome the Lord Mayor from the City of London, Mr David Lewis, if you would like to come up and say a few words. Thank you very much.

Mr David Lewis: Thank you very much, Christine. It is very nice indeed to be back in Hong Kong, where I was born in the year of the golden pig, I think it was, 60 years ago, and it is a place that my grandfather first came to in 1920, so it was a long time ago. We have had a long family history with Hong Kong. It is a great place, and the great thing about Hong Kong, as we know, is that London and Hong Kong both have the same approach to life – openness, transparency and competition – which is why I am delighted to be here to talk about this new market, because it is a market I am sure that Hong Kong will do extremely well in, and don't be modest about it. There is plenty for everyone. And Ronald Arculli here is not a man who usually is against competition and I am sure Ronald will make sure that the Hong Kong Exchange starts a new board in this area very quickly.

But I want to start, actually, by holding up this piece of paper. International Financial Services London (IFSL) is an organisation in London that is very close the Mayoralty. [Every year it produces a new publication that you can download from their website,] <http://ifsl.org.uk/>. If you haven't already got one, you should get one off the net because it gives you the up-to-date information on this particular market and how it works and what the stats are. And you will see from it, the latest stats that in the last year 3,000 million tonnes of CO₂ has been traded, 70 percent up on 2006. What sort of market is that! And two-thirds of that market in trading was allowance-based - EU ETS - and one-third was project-based - CDM's and JI framework, Kyoto protocol ones. You have got a lot of experts here who are primarily interested in the market and the statistics are quite amazing. They really are absolutely amazing. There is an awful lot of money to be made in this market. I am sure Hong Kong will join London.

And I am not one for worrying about competition any more than you are. The more people in this market, the bigger the cake will become, the bigger the market will become, and not only more money will be available to everybody in the market but, more to the point, it will actually help global warming, which is what this is all about.

I just want to tell you one tale. I was in Chongqing last year where I am told the population is something like 30 million people. Most people were wearing masks. I asked somebody, when did they last see the sun?, and they couldn't remember. We went to a factory. A new factory had been built, half financed by the ETS market in London. It was absolutely incredible and I think the particular outfit that had helped them do it was Eco Securities, which is an AIM-listed company, Oxford-based (my home town quite coincidentally), and they are probably represented here. But that is just one example and there are 69 AIM-listed companies who are experts on climate change who are in the market.

I would love to see some of them listed in Hong Kong on your market and doing much more work here because, if you look at the market, something like 73 percent – I think that's the figure – of CDM projects are based in China. Guess how many in India and Brazil? Six percent! That shows you the size of the market in China, and two-thirds of the CDM projects in China are being dealt with by United Kingdom companies. So, not only is there the market in trading emissions in London, which is absolutely huge – more than 80 percent of the trading takes place in London – but more to the point the United Kingdom experts are heavily into the China market, and the India and other markets, but the China market is the biggest one by value.

So, this seems to me to be a pretty obvious market where we can partner with Hong Kong. If we don't partner, if Hong Kong doesn't want to partner with the United Kingdom, that would be unfortunate, but be in no doubt about it, when the United States get their act together next year after the election, and both, I think, presidential candidates are saying they have got to do something post-Bush, the American market is going to get really very big indeed. Voluntarily, of course, quite a lot is going on at the moment, but it is going to get massive and Hong Kong has got to make a decision as to where it is going to partner. And I would suggest that it should go with the market leader but you will have to make up your own mind, and the Hong Kong Exchange will have to make up its own mind.

I don't think it is competition any more than I think Hong Kong is a competitor of London in relation to financial services generally, or New York, because my view of the world is that it is a global market and it is electronic, and it doesn't matter a great deal where the individual, where he is sitting, at which desk in which city. What matters is you have experts; you have bright people who are attracted to a particular centre to work in. And this is a market that is not going away any time soon. It is a huge growth

market, and I would love to see Hong Kong doing really well and having a bit of that cake. And if we in London can help Hong Kong grow that cake, we would love to be able to do so because the cake will get bigger, we will get a bigger slice of it and you will get a bigger slice of it, and it is as simple as that, frankly.

I am not going to give you any more stats because I imagine you have heard an awful lot this morning already, and you don't want to hear me, and I am very worried about the form you are about to fill in which says "was the speech useful or good, bad or indifferent?" That's always the trouble with conferences. So, I am going to finish with those words, but I do strongly support the great work that the United Kingdom climate change experts are doing, and I do strongly support the idea that Hong Kong should get into this market as fast as possible. There are various other markets you should get into as well, but this particular market, which is the subject of this conference, is very, very important, and you will help, you will help China in a tremendous way if you help them do it. This is only one way of helping climate change. It is not the whole solution but it is not going away and the financial markets are one way of helping climate change. The politicians have to decide on the other uses but at least we in the financial services sector can help in some material way to help the world economy in this particular respect.

So, thank you very much, and I am afraid some of you will have to put up with me returning this afternoon to talk rather more fully about this area. If you can stand the pace, I look forward to seeing you then. Thank you.

Ms Christine Loh: Thank you very much for your words. That was the best sales pitch I've ever heard. You basically said "we are beautiful in the UK. Come and work with us because we really know what we are talking about. The Americans might be bigger, but we are better!" And I think the audience is absolutely convinced about that.

Mr David Lewis: You have got it in one!

Ms Christine Loh: So, that was terrific, and of course Hong Kong is a part of China, is the most developed financial centre in China, so obviously we do have an important role to play. We have been a little bit slow in getting to the starting block, but I think you can see by the interest that we have in this room and, when Hong Kong gets to it, we usually then move pretty fast. So, thank you for taking time and coming to share some words with us.

Thank you to the panel, thank you to all three of you to have travelled very far to come and share your experience with us. Please stay for the refreshments so that you can have your individual chat with the speaker and the panellists, and we hope that in future, when we organise more events, that you would come. I am sorry about the form which you do have to fill in, because this is the requirement of the funder, but hopefully you will give the Lord Mayor very high marks for his remarks.

Thank you very much again. Thank you to the Stock Exchange. Thank you very much to the British Consulate for sponsoring this event.

Civic Exchange
Room 701 Hoseinee House
69 Wyndham Street
Central, Hong Kong
Tel: 2893-0213
Fax: 3105-9713
www.civic-exchange.org