

Going Forward With Green Trading Markets

By PETER FUSARO.

Contrary to what many believe in Europe because of the inordinate amount of press attention on the modest Kyoto Protocol, environmental financial risk is rising as an issue in corporate America. The issues of environmental financial liabilities and the emergence of climate change risk have made companies extremely nervous on proceeding forward in market development with such near-term uncertainty and potential impact to their bottom line.

Recently, Fitch Ratings issued the first report from a ratings agency on emissions trading as this becomes a corporate financial issue in America. Moreover, existing US environmental financial markets for sulphur dioxide (SO₂) and nitrous oxide (NO_x) are the most developed and most stringent global emissions standards mandated and are continuing to ratchet downward. The US will also need to come to grips with mercury emissions soon (the first in the world) and that bodes well as another market-based trading solution to reduce pollution.

I coined the term 'green trading' several years ago to capture the convergence of capital markets and the environment into a mainstream corporate financial issue. The intent was to capture both the problem and the solution as a financial trading mechanism and as a means to ameliorate pollution. Building on the successful 11 year old programme in sulphur dioxide emissions trading in the US, green trading was to be the bridge to reducing greenhouse gas (GHG) pollution, increasing renewable energy credit trading and increasing the use of energy efficiency or

'negawatt trading' through the use of financial markets. The long-term impact would be to reduce pollution in a cost effective manner and accelerate the introduction of more environmentally benign technologies. This would cause minimal economic disruption to the capital intensive energy industry as well as other industrial sources of pollution as well as the agricultural industry. It would create new financial markets where 'trading pollution', as some would say, would actually create concrete and measurable emissions reductions for American business.

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This is what is beginning to occur. Today, green trading has gone global and there are market-based regimes in the US, Canada, the EU, Japan, Australia and the beginning of markets in developing countries. Trading pollution works to accelerate technology transfer for sustainable development in a cost effective and market-centric manner.

It must not be forgotten, and needs to be re-emphasised, that the US created emissions trading markets in 1995 for SO₂ and in 1999 for NO_x. The US delegation also proposed emissions

trading into the international climate change process in 1992. 'Made in America' is stamped all over the Kyoto Protocol, and the US still has the most mature and advanced environmental financial markets in the world and is actually way ahead on SO₂ and NO_x and probably mercury reductions soon. Trading mechanisms have been proven to work.

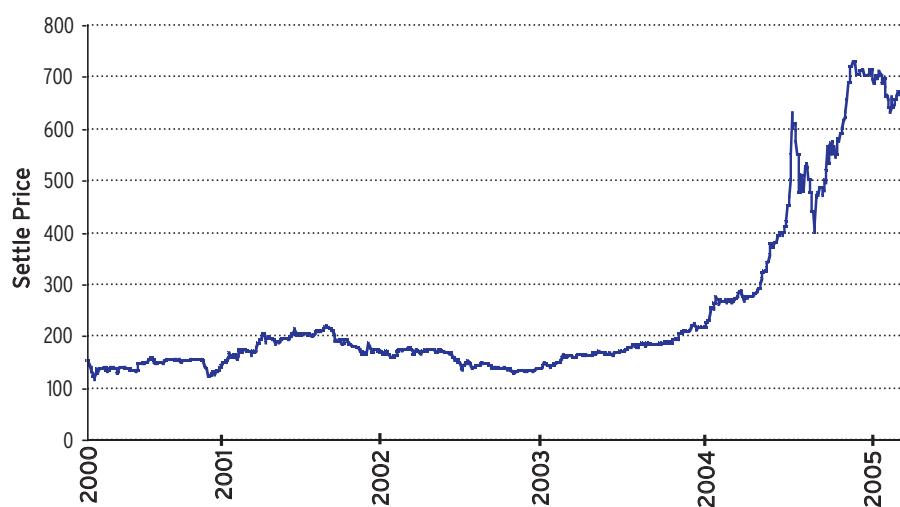
Emissions trading markets are not true commodity markets as they are 'cap and trade' - meaning that emissions are ratcheted down over time. For the US SO₂ markets, it is a 35 year regime of reductions and more stringent standards until the year 2030. For CO₂ and other GHG reductions, we will need a 100 year programme that engages the entire world and sets quantifiable long-term benchmarks to reduce GHG emissions not the restricted Kyoto accord. Kyoto implementation began on February 16th 2005 and is a modest first step to global emissions reductions, but the larger question is, will there be significant CO₂ reductions in the next two decades to meet carbon stabilisation in the atmosphere?

Most sanguine minds realised long ago that Kyoto was a failure. It did not realistically look at the world and was happy to look at the minutiae, not the obvious bigger picture. The reality is that the entire world is in this together for the long haul. This is no quick technological fix as long as the world is addicted to fossil fuels whose consumption is still rising. That habit is not going to change as has been evidenced in the past year with record oil, coal and natural gas consumption

SUMMARY OF US EMISSIONS TRADING PROGRAMMES

Programme	Agency	Type	Emissions	Source	Scope	Year
EPA Emissions Trading Programme	U.S. EPA	Reduction Credit, Averaging	Various	Stationary	United States	1979-Present
Lead-In-Gasoline	U.S. EPA	Averaging	Lead	Gasoline	United States	1982-1987
Acid Rain Trading	U.S. EPA	Cap-and-Trade, Reduction Credit	SO ₂	Electricity Generation	United States	1995-Present
RECLAIM	South Coast Air, Quality Management District	Cap-and-Trade	NO _x , SO ₂	Stationary	Los Angeles Basin	1994-Present
Averaging, Banking and Trading	U.S. EPA	Averaging	Various	Mobile	United States	1991-Present
Northeast NO _x Budget Trading	U.S. EPA, 12 States and Washington, D.C.	Cap-and-Trade	NO _x	Stationary	Northeastern United States	1999-Present

EPA - Environmental Protection Agency. NO_x - Nitrogen oxide. SO₂ - Sulphur dioxide. Source: *Emissions Trading in the U.S.: Experience, Lessons, and Considerations for Greenhouse Gases*, A. Denny Ellerman, Paul L. Joskow and David Harrison Jr. Pew Center on Global Climate Change, Arlington, Va., May, 2003.

FIGURE 1. SO₂ SPOT PRICE

Source: Evolution Markets LLC

despite higher prices. Therefore, we are either part of the solution or part of the problem.

The solution is that we need a climate change regime that will aggressively reduce global carbon intensity, including both stationary and mobile sources, accelerate technology transfer, and increase energy efficiency. The irony is that the technology exists today to get the job done. The vaporware technology proposed by the Bush Administration on FutureGen and the hydrogen economy obfuscate that today's energy technologies can be rapidly implemented now.

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We have integrated gas combined cycle clean coal technology that is now beginning to accelerate in rapid deployment in the US to over 20 sites driven by the markets. This change has been caused by the US\$700 price for sulphur dioxide and NO_x prices rising to over US\$40,000 in the regional markets of the Houston/Galveston area. What is often forgotten in the technology shift now underway is the dual benefit of the efficiency gain in the use of gasification technology from 30% for conventional coal-fired generation to over 70% efficiency. The bottom line is that less fossil fuels will be used to create the same amount of power. This reduction of the carbon footprint of many coal-fired facilities can not be understated. The applications are obviously worldwide.

Commodity CO₂ used for enhanced oil recovery in Texas and Wyoming is now married to carbon

sequestration efforts in those states. Using naturally depleted geologic formations is being pushed forward by the oil industry and the US Department of Energy. Again, the US is leading in these green efforts.

Turning to mobile sources of pollution, hybrid gasoline/electric vehicles that reduce both CO₂ tail-pipe emissions and fuel economy are now being embraced by the US public as well as other nations. Tail-pipe emissions will be regulated in 2009 in California and subsequently adopted in New York and other States despite legal challenges of the automobile industries - once again the first standards in the world. And we now also have many energy efficiency devices that reduce building loads from both commercial and residential buildings. Building energy consumption contributes to GHG emissions.

What is lacking in America is the mandate of the federal government. We need the federal government to set the rules that can bring a financial value to emissions reductions. The point is that both the SO₂ and NO_x programmes are mandated and have financial penalties for non-compliance. The so-called voluntary efforts aren't worth much more than the paper they're printed on and are a public relations exercise not a real market driver for change. This is reflected in the low carbon prices in the US today.

Emissions trading is one mechanism to accomplish many of the goals of reducing GHGs. The ability to monitor and certify verifiable reductions is already in place through both third-party certification companies and geopositioning satellites and remote sensing devices.

For the past two years, corporate America has been trying to figure out the business case for GHG reductions. The business case is fairly simple - either pay less now or pay more later. We now have most companies beginning to analyse their risks and realise that there is a global issue here and that they have got to do



Emission Trading - Overview

The commencement of carbon dioxide (CO₂) trading in Europe and the recent run-up in prices in the United States for sulphur dioxide (SO₂) emission credits have contributed greatly to renewed attention to the value and effectiveness of the use of emission credits. Fitch Ratings believes that a well structured emission trading programme can assist companies in managing and reducing capital expenditure requirements to comply with legal requirements to reduce harmful emissions, while at the same time not hampering the achievement of environmental goals. Fitch also recognises that a trading programme that does not foster the overall reduction in pollutants would ultimately fail. Historically, the use of allowances alone has not been the most cost-effective way of dealing with environmental problems, and this is likely to remain the case. The purchase of emission credits is one part of a solution that includes installation of pollution-control devices, fuel-switching, conservation or demand management and improved efficiency.

There have been six major emission trading programmes in the United States based on regulated reduction schemes. Additionally, there is voluntary carbon emission trading, most notably over the Chicago Climate Exchange (CCX). This report will focus on the trading of SO₂ and nitrogen oxide (NO_x) under the Clean Air Act (CAA), as these programmes apply to the widest group of companies covered by Fitch's global power group in the United States. Additionally, there will be some discussion of the trading of CO₂, as Fitch believes that the United States will eventually have a federal law limiting the emissions of CO₂ and possibly other greenhouse gases (GHGs).

An emission trading programme is primarily valuable because it puts a market price on the cost of emissions, thus allowing a company to make an informed choice among compliance options. However, it should be noted that a dysfunctional trading system can result in market prices that could lead to economically suboptimal decision making.

For an emission trading market to be efficient, allocation of emission allowances or credits must be assigned in a consistent and coordinated fashion. Emission output and compliance must be auditable, and compliance must be certifiable to support the value of the emission allowance. This will be particularly challenging as the market for carbon develops. With SO₂, there is one overarching regulatory body, the Environmental Protection Agency (EPA), that allocates the allowances and monitors the compliance process. However, with carbon, there will be a number of countries setting their own procedures with varying degrees of rigor.

Rating Implications

Fitch anticipates more stringent pollution control requirements leading to increased operating and capital costs. A well structured emission trading programme can assist companies in managing and reducing capital expenditures for compliance with environmental regulations.

Key Observations

- Current financial effect from emissions is modest.
- NO_x and SO₂ trading has generally worked as intended.
- Investing in emission credits does, nonetheless, involve risks, albeit generally modest at the enterprise level.
- International cooperation and standardisation will be very important for trading in carbon and less so for NO_x and SO₂.

Source: Fitch Ratings: Global Power/North America Special Report, December 2004.

something about it. This is especially true of US multinational companies who have one set of standards in the US and another in the EU. They don't want dual environmental standards and are beginning to push for change in the US federal position on GHGs.

Another driver behind the GHG market is that we now have institutional shareholders forcing corporations to acknowledge the environmental risk on their books. This has been done mostly by pension funds and is similar to the strategy that was taken in tobacco litigation which was quite effective. There are also several litigation efforts to get the US federal government to change its present oppositional position.

Kyoto implementation has truly been a wake up call for corporate America

Nevertheless, global environmental markets are beginning to take hold, with GHG trades valued at about US\$2 billion in notional value so far. We have already seen 15,000,000 tons traded since the inception of the EU Emission Trading Scheme (to end February 2005).

We have also seen 2.5 million tons traded on the Chicago Climate Exchange with over 60 companies participating, and carbon trading at about US\$2 per ton. Many larger trades on the US OTC markets including a 1 million ton trade done by electric utility Entergy in December 2004. In the US, we are getting an uplift from the marriage of CO₂ injection for enhanced oil recovery and carbon sequestration which is facilitating the trading of millions of tons of carbon. (Ironically, a lot of this activity is centred in the oil and gas production in Texas.) And we have seen the emergence of about 10 green hedge funds which will actually trade carbon speculatively.

WHERE ARE WE NOW?

Kyoto implementation has truly been a wake up call for corporate America. This has finally stimulated companies into starting to analyse their climate risks by inventorying them. We are also starting to see the risk manager in some major corporations handling the GHG issue, along with

carbon finance – and generally playing a bigger role.

Multinational corporations are starting to realise that they have compliance issues at many locations. We cannot wait until 2008 [end of the Bush Presidency] to effect the change necessary. And the consensus that is emerging in the US is that a climate change regime will be in place in the next two to three years.

THE NEED FOR MARKET MAKERS

Oil companies, utilities and banks are needed as market makers to make these environmental financial markets work more effectively. Today, Morgan Stanley is the largest SO₂ emissions trader in North America, and Barclays Capital in London is making a concerted effort to make carbon markets in Europe. We are witnessing a market transformation similar to oil market developments in the late 1970s, i.e. opaque price discovery and little liquidity. But the good news is that this time it is happening all over the world at the same time. We are now positioned for the beginning of a liquid spot market instead of one-off trades.

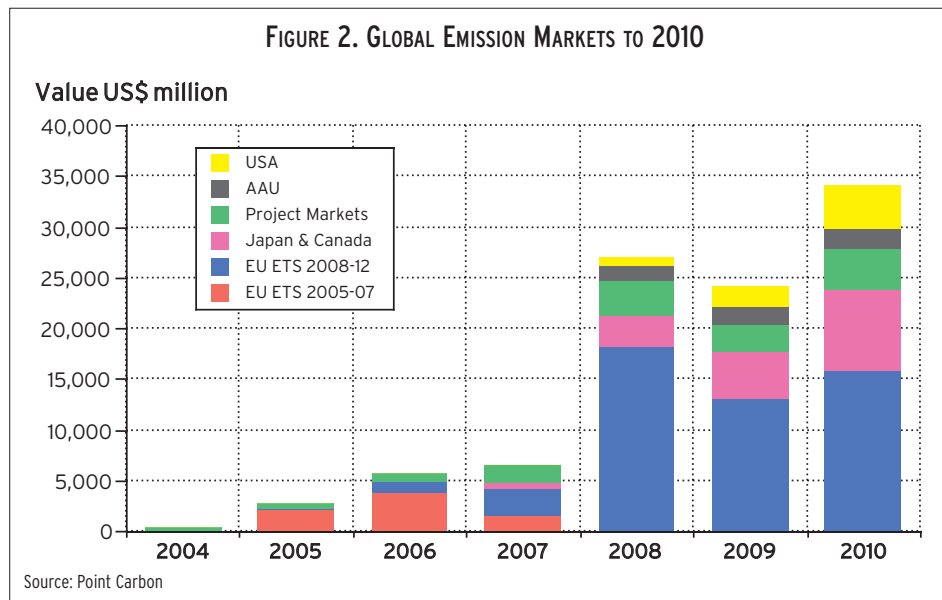
2005 will be the breakthrough year for environmental trading with spot transactions, rapidly increasing volumes, the development of price indices, and advanced brokerage. In similar fashion to the power and gas markets – and largely running in parallel with their development – we will see good growth in carbon finance.

RENEWABLE ENERGY CREDITS

Renewable energy credits (RECs) are going from promise to reality, and are also going global. The US has active or developing markets in 19 States, and there are markets in the EU, Australia and New Zealand. More recently, we have seen both China and Russia move forward on their movement to ‘clean technology’ that will jumpstart market development in those countries. There is also demand with many active green power marketers that need supply. In the US, there are also State purchase mandates that include renewable energy procurement with some federal agencies also participating.

WHAT’S UP AHEAD IN THE US

The evolving US regulatory landscape is still an open issue. On the horizon, there are more States with both renewable portfolio standards (RPS) and GHG reduction systems taking shape. Another



important insight that should not be overlooked is what we saw in the development of the US SO₂ programme – a process that we might see duplicated in the GHG and renewable markets. This is that so many States started to put together their own regulations that companies operating in a multi-state environment finally called on the Federal Government for consistency and a level

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playing field in regulation. In effect, companies asked for Federal regulation, and they are starting to do just that with Southern California Edison, an electric utility, asking for Federal standards. That’s how the federal Clean Air Act amendments went forward and started the first successful emissions trading programme in 1990 – SO₂. That action will happen in GHG.

The GHG markets are beginning to start from a forward basis. It will take several years from investment decision to operation of these projects and implementation of their reduction plans. Companies have to act early. Here are two examples of timelines in terms of the creation of markets. The first example is the SO₂ market for acid rain reduction. In 1992, the first SO₂ transaction occurred and 1995 was the first year

of compliance for SO₂. The second example is the NO_x market for ozone transport region. June of 1998 was the first NO_x trade and 1999 was the first year for NO_x compliance.

GHG markets are already beginning to take off this year and should follow a similar rate of acceleration as SO₂ and NO_x experience. This is because there is more at stake and because the European market can draw on US experience. Moreover, they can also draw on the experience and talented pool of people that are available in the US financial and energy trading community.

Green trading markets are now entering the ‘hockey stick’ phase of market development. This year promises to bring us the financial market acceleration that has been expected for many years. The US is still well positioned to lead on environmental financial market development with its entrepreneurial culture, risk capital and knowledge base in trading. Don’t be too surprised as it assumes its leadership role again ■

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