

# Green Trading: The New Financial Market for the Environment

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Ongoing developments in the 'green trading' markets for greenhouse gases (GHGs), renewable energy credits, and the financial value of energy efficiency are beginning to have an impact on energy markets. Green trading offers a cost effective and viable solution to growing global environmentalism and demonstrates the convergence of capital markets and the environment. While 2004 once again continues to exhibit indications of being a market building year, 2005 will be the breakthrough year for green trading. We are now seeing the acceleration of that trend in North America, the EU and Asia Pacific.

The GHG emissions reduction environment now offers the next commercial opportunity for commoditisation, and ironically mimics US oil market developments in the late 1970s – except this time the process will be done on a global basis. The trading opportunity may be US\$2.3 trillion from a base of only US\$6 billion in emissions trading today (mostly in the US sulphur dioxide (SO<sub>2</sub>) market). The dynamics of this fundamental change are just being recognised in today's battered energy trading markets.

Large financial institutions are now acknowledging the need to manage the financial risk of owning generation assets and are developing emissions trading expertise. Moreover, most large oil and gas companies recognise these increasing risks already and are beginning to create a profit and loss statement for managing their carbon liability. This is a business opportunity that is growing not contracting.

Since energy business is already globalised and multinational with large energy companies operating in more than 100 countries, a new globally conscious environmentalism has been created over the past decade, and, as a result, pollution can no longer be exported across borders. Global environmentalism is even truer of GHG emissions that affect the entire planet. With carbon content increasing in the atmosphere at 4 parts per million (ppm) annually, there is justifiable fear that inaction will eventually lead to ecological disaster and higher costs. This concern has created the potential for global emissions trading (including web based applications). While past environmental protection in many countries has followed the heavy handed command and control approach (proven to be expensive and

cumbersome), more cost effective market based incentives using tradable permits have been gathering momentum over the last decade. The initial successes to date have been the trading of chlorofluorocarbons (CFCs) under the Montreal Protocol of 1987 to save the ozone layer, and the US emissions trading scheme for sulphur dioxide (SO<sub>2</sub>) for acid rain abatement, which began in 1995. The key to these market successes has been the introduction of tradable permits combined with government sanctions for non-compliance and government mandates for carbon i.e the so called cap and trade approach.

Today's market uncertainty is making corporations extremely nervous. Many companies

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have been battered by trading losses as well as capital at risk on project finance ventures that went awry. The reality is that the environmental financial market is a liability that must be proactively managed. First movers may be penalised or benefit handsomely since the costs will be higher later. In the US, the Chicago Climate Exchange (CCX) has leapt into the void and is attracting membership from outside the energy complex concerned about these risks. This is only one example of a market choice that will have both bilateral and exchange traded components.

## WHERE THE MARKET IS TODAY

The existing green trading market can be characterised as having the following characteristics: opaque prices, little trading, few participants, poor liquidity, tremendous inefficiency, and wide arbitrage opportunities. If these attributes sound familiar, they should be, being primary indicators of a potential emerging market. Having experienced the emergence and maturation of oil, gas, power, weather and coal as fungible commodity trading markets, energy and financial traders are now well positioned to be the next financial commodity trading market. More uniquely, it will explode simultaneously throughout the world. Similar to oil market developments circa 1978, we are now seeing the emergence of carbon

(CO<sub>2</sub>) as a fungible commodity trading market trading in metric tonnes.

The other unique aspect of this environmental market is that it is a government-mandated market – despite what the advocates of voluntary trading say in the US. In fact, the US created the carbon template if one looks at the trading regime of the SO<sub>2</sub> allowance market, with vintage credits through the year 2030. A true carbon regime will have a span over the next 50 to 100 years. This is envisioned after 2012 for the Kyoto Protocol (KP) and work at the governmental level is already underway to create the longer-term market.

While the private sector will take the lead on the development of emissions trading markets wherever it has a vested commercial interest in emissions reductions, compliance responsibility will (and should) rest with governments (national or regional). There are strong beliefs that markets will form first, thus creating an emissions trading marketplace, and that governments should not inhibit such growth. We are beginning to see this emergence today. This new marketplace would motivate firms with surplus emission rights to trade or supply those rights to the market. In effect, despite the risk of uncertainty on future rules, there are merits to moving forward early. It seems evident that industry driven schemes will be grandfathered in the future as rules are more clearly defined. Thus, industry can create its own domestic and international portfolio of emissions allowances or credits.

The environment today is also being framed as a corporate financial issue. Greater financial disclosure of corporate environmental risks, including climate change, has raised the issue as a corporate fiduciary responsibility. Corporate boards are increasingly concerned as shareholders question their environmental practices. Companies such as Innovent Strategic Advisors, (the so called 'Green Moody's') highlight these environmental financial risks and that concept is now beginning to resonate in corporate boardrooms. It's an issue that is gaining momentum as environmental and financial performance are increasingly intertwined. This directly affects companies like automobile manufacturers, electric utilities, oil and gas companies, banks and insurance companies. Automakers are concerned about CO<sub>2</sub> emissions per vehicle produced and sold. Electric utilities are paying more attention to reducing

their GHG emissions footprint as part of their air emissions reductions. Oil and gas companies are increasingly concerned about emissions as production, refining, transportation and distribution liabilities. Bank share valuations could fall if they do not have adequate carbon risk management strategies. And insurance and reinsurance companies are now at the forefront of confronting financial risks such as catastrophic risk for crop failure due to climate change, and health related risks due to the linkage of climate change and infectious disease. These new financial risks for insurance and reinsurance companies may even lead to them dropping coverage for certain companies.

Whether or not the KP comes into force, energy markets and many private companies are already moving forward with their own initiatives to comply with the treaty. Emissions trading presents a near-term viable alternative. So far, the most activity to create emissions trading markets has been in the US, Canada, Japan and Europe. The highly successful and pioneering US markets for SO<sub>2</sub> and now also nitrous oxide (NO<sub>x</sub>) are providing the financial template to be applied for global CO<sub>2</sub> markets.

There are several parallels between the development of emissions trading schemes, and the dual process of electric power industry liberalisation in many countries. Emissions trading and electric power deregulation intersect since the power industry contributes to GHG emissions.

#### **LONGER-TERM GHG EXCHANGE OPPORTUNITIES**

Since most environmental financial contracts today are traded on the OTC markets, there is an opportunity for exchanges like the New York Mercantile Exchange (NYMEX) or the International Petroleum Exchange (IPE) to offer OTC clearing which would effectively make them quasi-futures contracts under government oversight. This could help make them more acceptable to risk managers. Nymex could also supplement this effort by launching environmental futures contracts such as SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub> and Renewable Energy Credits (RECs). Currently Nymex trades WTI crude oil, heating oil, gasoline, natural gas, electric power and coal futures, which are directly linked with emissions. These efforts are under consideration by the Exchange. The same is true for the IPE in

London for emissions trading in the EU.

In Japan – the other market severely affected by the KP – both the Tokyo Commodities Exchange and Tokyo Stock Exchange are considering launching carbon derivatives contracts. Presently, the ground rules in Japan are in a state of flux between a ‘cap and trade’ market and a baseline market. There is also a movement emerging to create the next trading regime beyond 2012 and

### **Financial markets need a viable active physical market for energy & environmental trading**

the KP to include developing giants such as China, India and Indonesia.

Typically, commodity contracts trade six to twenty times the physical underlying market. To put this in perspective, the US SO<sub>2</sub> market has been estimated at US\$6 billion. The energy derivatives markets, both exchange traded futures contracts and OTC price swaps, has been estimated at about US\$2 - 3 trillion. The global foreign exchange and interest rate swaps market is over US\$120 trillion in notional value. The GHG market, estimated at US\$2.3 billion by the Council of Foreign Relations (a noted foreign policy advisory group based in New York) indicates the potential for a marketplace that is increasingly attracting capital.

#### **RENEWABLE ENERGY TRADING SET TO TAKE OFF**

Renewable energy is accelerating due to both technology breakthroughs and government mandates. Wind power and solar energy are growing 40% and 30% respectively. But biomass and municipal solid waste reductions in the form of power generation are also increasing in both size and scope. Recently, there have been some cross border trades in this area. Renewable energy portfolio standards in the US, and mandates in the EU, Japan and Australia are driving the market. The key will be to trade these credits cross border and interstate in the US. They will be priced in megawatt hours of electricity. While seemingly small today compared to fossil

fuel usage for oil, gas and coal, renewable energy must be seen as growing from a small base to becoming a sizable portion of electric load in the next two decades. Financial markets need a viable active physical market for energy and environmental trading. That is what is now evolving for renewables, and the trading of their environmental attributes promises to jump start even more market penetration as large wind developers can get bank financing at lower costs by monetising these credits.

#### **THE ENERGY EFFICIENCY (NEGAWATT) MARKET**

Last year's blackouts in both North America and the EU have drawn more attention to demand response and energy efficiency activities. This is a new area of financial commoditisation, i.e. not producing power as a financially fungible commodity. One of the drivers of this change has been the impact that electricity deregulation has contributed to electricity reliability problems in several ways. One was that wholesale generation and some retail markets has resulted in a marked increase in power transfers over long distances, and the grid was not designed to handle these flows. Many utilities have cut costs and staff to prepare for deregulation, including resources for maintaining transmission and distribution lines and for energy efficiency programmes. Finally, the uncertainty created by the debate over transmission rules, rates, and governing bodies in an era of increasing competition has resulted in reduced investment in the transmission and distribution system in some regions. Thus, increased energy efficiency can be seen as the fastest and cheapest way to ease pressure on the electricity system. This can be done by enacting tougher energy efficiency standards for appliances and buildings and increasing Federal, State, and utility funding for energy efficiency. Utilities also feel that demand response programmes in which customers receive financial incentives to reduce or shift their electricity use or switch on backup generators when power supplies are low or lines are congested, can be much less expensive than adding plants or wires to respond to peak demands on the electrical system. National interconnection standards and net metering (allowing surplus generation to turn the electric meter backward) are needed to

remove barriers to the development of distributed technologies.

**WAIT UNTIL NEXT YEAR**

The global energy industry is severely affected by these new financial risks related to climate change. With growing energy demand particularly for oil and gas in the Asia Pacific region, market-based mechanisms for reducing carbon intensity offer a cost effective solution to global pollution there as well. And despite apparent obstacles to creating a viable green trading market, the time for environmental trading is now – as political momentum moves the market forward. The political wherewithal is present, the technology is available, and, most importantly, the financial engineering and risk management tools are in place with the affected parties willing to participate ■

**GREEN TRADING**

More information about this emerging financial market can be found in Peter Fusaro's new book with Marion Yuen entitled *GreenTrading™: Commercial Opportunities for the Environment*. This is the first book examining the convergence of capital markets and the environment for GHG and other emissions reductions, renewable energy credits and energy efficiency trading.

Further information about purchasing the book is available at:

[www.greentradingsummit.com](http://www.greentradingsummit.com)

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