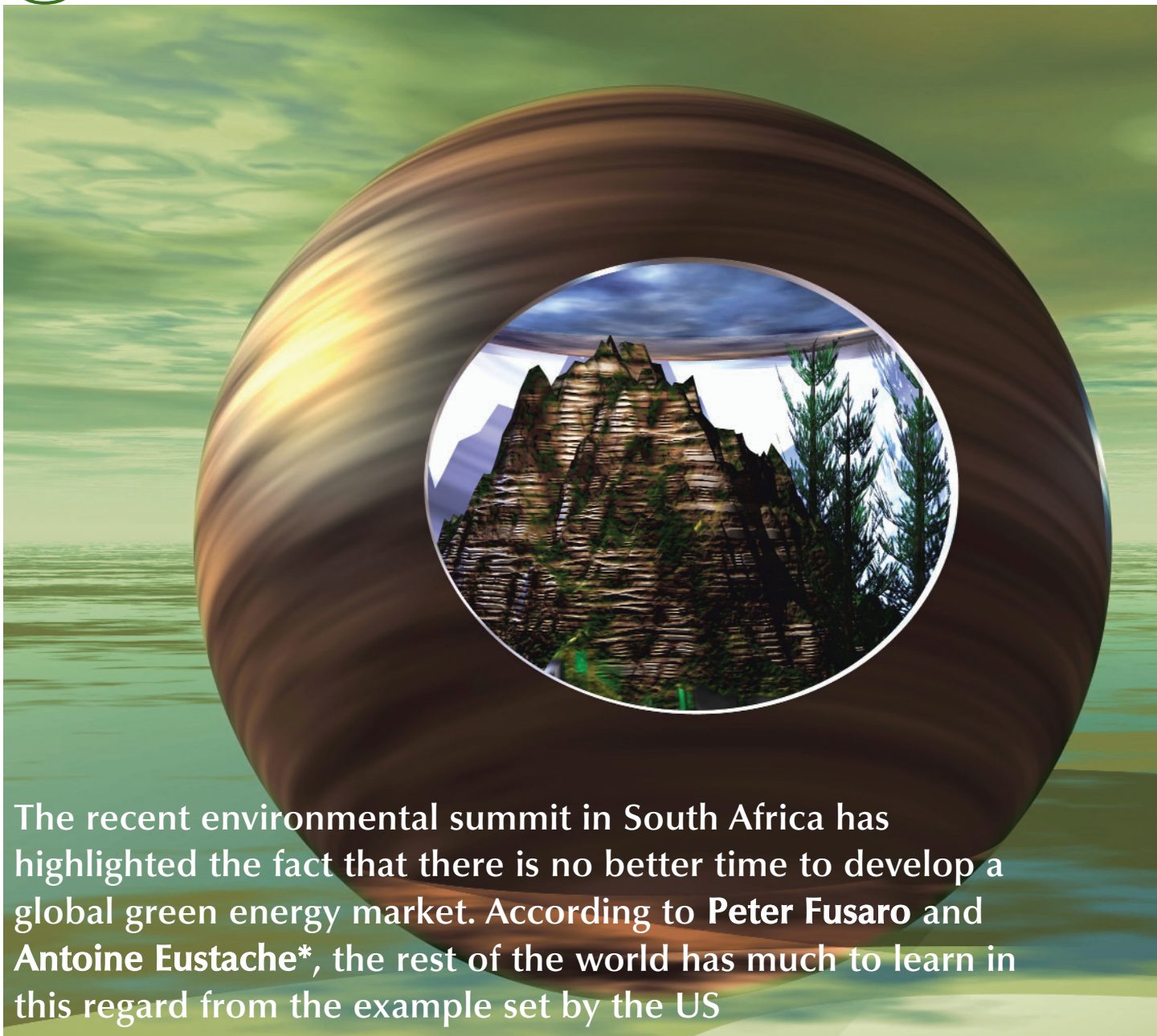


The green light for a cleaner globe



The recent environmental summit in South Africa has highlighted the fact that there is no better time to develop a global green energy market. According to **Peter Fusaro** and **Antoine Eustache***, the rest of the world has much to learn in this regard from the example set by the US

Continued focus on the Enron debacle and the collapse of North American gas and electricity trading through the loss of so many market makers has obscured the potential of the newest energy trading market – the green market for trading credit and allowances encompasses much more than just emissions trading. The recent environmental summit in Johannesburg, South Africa, indicated the potential growth and application of green markets throughout the world for both developed and developing countries. It is not the over-hyped weather and bandwidth trading markets of the past couple of years, but the ‘real’ next market that will bring

global environmental remediation to very real problems. Market-based mechanisms are, of course, part of the Kyoto Protocol, but since it lacks the participation of the US and is seen by some as a fig leaf for real, fundamental change on energy and environmental issues, green markets are a good alternative for facilitating change. The reality is that any solution to arresting greenhouse gas (GHG) emissions will take decades to complete – something that was envisioned in the US SO₂ programme, ironically proposed by environmentalists, which goes out until 2030 not 2012 like the Kyoto Protocol. The US is still pursuing GHG emissions trading, despite its rejection of the Protocol, and well in advance of any cap and trade regime.

Green markets work

While the debate rages on how the rules will be set for global environmental markets, the reality is that the only workable environmental markets are the US SO₂ and NO_x markets. However, the green market model can be replicated throughout the world. The creation of renewable energy credit markets now in Australia and Texas, and next year in California, New York, New Jersey and so on offers alternatives to traditional thinking on emissions trading. Finally, the electricity capacity and delivery shortages in certain regions of the US grid have given rise to the negawatt market – a term created by Rocky Mountain Institute over two decades ago. The second coming of energy efficiency is now here; for the negawatt market has the double benefit of avoiding pollution and using energy more benignly. It values energy efficiency as a financial product, which is revolutionary because most energy efficiency programmes are government mandated. In this case, it is the way the product is marketed that is advocating change.

What is renewable energy?

The renewable energy market encompasses wind, solar, biomass, hydro, wave and hydrogen sources of energy. The global wind energy market is now growing by 40% annually, with solar growing by 30%. While it can be argued that the installation base of these products is small, the key is to look at the growth trajectory. Natural gas, in this environment, can be viewed as a transitional fuel to a renewable and hydrogen economy.

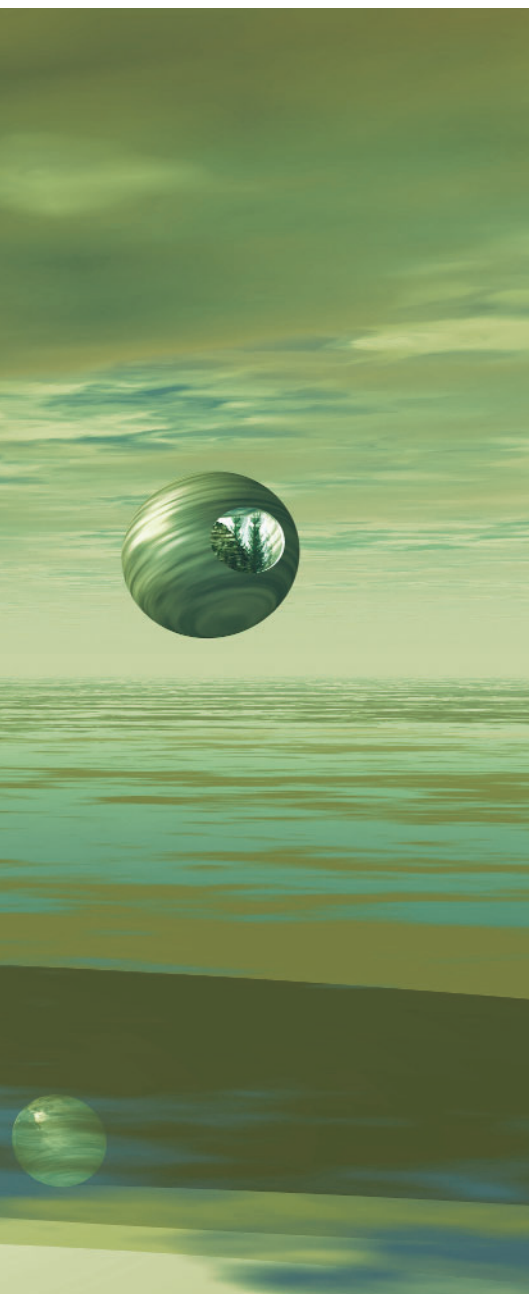
The older coal and oil-fired equipment that is significantly less efficient (by around 30%) and creates more GHG will now be replaced by natural, gas-fired equipment, with better technology achieving efficiency gains of up to 70% using fairly conventional methods. This efficiency gain cannot be understated because major developing countries can now leapfrog technologies using renewable and efficient methods to avoid many of the dirtier solutions to pollution. These projects can be scaled down for smaller installations, as well as at the massive projects currently underway or being contemplated.

Why a market-based solution?

A new market has, therefore, been created from the convergence of three markets, at the heart of which is financial trading. Consequently, the market needs financial engineering expertise and risk management solutions to survive. Ironically, those same brokers and traders laid off as a result of the financial meltdown in the US, which is now impacting European gas and power markets as well, obviously have the energy knowledge, risk management skills set and ability to trade financial products. The only question remaining is how steep the learning curve to create markets is. The talent pool is deep, and includes those highly aggressive ex-Enron employees that were “done wrong” by their bosses and have a lot to prove.

Who is going to play in this market? The answer is oil and gas firms; gas and electricity utilities; metals, pulp and paper industry participants; automakers and others vulnerable to the GHG issue. Solutions will originate at investment banks, insurance and reinsurance firms, energy companies and end-users, as environmental markets converge with capital markets. Cross-border trade of these credits and allowances will accelerate over time, as the multinational players recognise that good business can be made in the so-called ‘carbon kicker’. Smarter firms have already realised that it is cheaper to act now, rather than being forced to comply with laws later – they are already thinking that it may be a fiduciary responsibility to comply now, in case more stringent environmental regulations are in the pipeline.

Venture capital funds and project finance groups are already contemplating how to evaluate these credits in their projects throughout the world. Options specialists will be in high demand for



valuing carbon and other gases, together with renewable energy credits and negawatts – the best application of financial engineering. It is also a great business opportunity for risk management software vendors and financial specialists to evaluate mark-to-market models.

Markets for the environment

There is always a maturation process for market development. In this case, the green market began in 1995 when the first SO₂ allowances were traded. Forward curves are now developing for more environmentally centric trading. More stringent standards were introduced and more power stations were added to the programme. While many ill-informed observers of the market feel that emissions trading is a way of paying to pollute, the market is, in reality, financing emissions reductions elsewhere and accelerating technology transfer.

OTC environmental brokers have a unique contribution to make to market development. Their data are important for market creation and their deal flow will contribute to market indices and future trading liquidity. After all, OTC brokers are now making markets front and centre with their buy/sell quotes.

The financial impact of such a market solely for GHG has been estimated at \$3 trillion. Today, the SO₂ market alone is worth \$5 billion annually, and is growing fast. Financial opportunities are definitely there – combining the green market with other markets presents a global market opportunity.

California at the forefront

Having refused to wait for the Bush administration to act on GHG, California has enacted legislation, Assembly Bill 1493, which regulates CO₂ emissions from motor vehicles. The legislation requires California Air Resources Board to develop regulations to achieve the “maximum feasible and cost-effective reduction of greenhouse gas emissions” from passenger vehicles and light-duty trucks by 1 January 2005. Passenger vehicles and light-duty trucks account for approximately 40% of GHG emissions in the state. The regulations will not take effect until 1 January 2006, and will apply only to model year 2009 and later vehicles. As a result, it is possible that motor vehicle manufacturers could receive credits for reductions in GHG achieved prior to the effective date of the regulations,

with the 2000 model year serving as the baseline for measuring reductions.

Turning to the renewables market, while eight states already have renewable energy portfolio standards (RPS), California recently approved the creation of RPS, beginning on 1 January 2003. The Californian market currently has 12% renewable energy compared with the total US renewable market of 2%; its three investor owned utilities are now mandated to reach 20% by 2017. PG&E (currently at 12%) and Southern California Edison (14%) can reach that goal by 2010. Semptra, the third largest utility in the state, is currently at 1% and has until 2017 to reach the goal. These three utilities supply 75% of California’s electricity supply, so RPS will create a stronger trading market for renewable energy in California, as credits can be banked and more liquidity will be created by more projects entering the trading pool.

Opportunities and challenges

Going forward, it is highly likely that green trading will evolve at varying speeds in the global economy, given the uneven degree of political initiatives and industry support. It is even conceivable that some European and Asian countries could catch up fairly quickly with the US. Should the parties that have ratified – or plan to ratify – Kyoto manage to move beyond political posturing and iron out the practical issues crucial to the development of a traded market, green trading will certainly evolve at a more rapid pace. While individually these countries may be small, as a whole their will in creating liquidity could help propel green trading forward for the future.

Yet, green trading still faces many challenges. As countries move forward with setting their individual policies, it is possible that there will be a number of competing standards. This may work as long as green trading is confined within national boundaries. However, if green trading is to become a global market, it is imperative that a uniform set of standards be developed. These standards would ensure that tradable units are mutually recognised by most domestic and international trading systems. It is essential that tradable emission units or green trading certificates have the same meaning for all parties involved in the process.

Multinational businesses must be able to exchange tradable units across the globe without the hindrance of converting them every time they set up shop in a different

country, otherwise the cost of adapting to various standards could become prohibitive. Parties involved in cross-border trading must feel confident that the mechanisms for tracking covered emissions sources are flawless. In addition, there must be a proper enforcement mechanism in place to ensure that units traded are in compliance with international standards and that countries are not exceeding their emissions limitation quota.

Accurate and timely information will also be essential to the growth of these emerging markets. This includes accurate price reporting, timely news and analysis of various market fundamentals. There is no doubt that markets with a long tradition in trading commodities will have the resources and networks in place to take advantage of the arbitrage opportunities that are likely to emerge as these markets evolve. Some of these players will have the capability to track market developments as they occur anywhere in the world and will be able to profit quickly from these developments.

While green trading has the potential to develop into fragmented markets, it is highly likely that multinational companies will require uniform environmental standards throughout the globe. Regions such as Europe and the US, which make up a large part of the GHG market, would flourish. Smaller markets – including most developing countries – could face serious liquidity issues because of their inability to easily dispose of surplus units in a timely fashion if there is not a global market. In this case, the economic and environmental advantages envisaged by the proponents of green trading would be limited, at best.

Despite all these apparent obstacles to creating a viable trading market, the time for environmental trading is now, as momentum moves the market forward. The political wherewithal is present, the technology is available, but most importantly, the financial engineering and risk management skills set is in place and ready to begin trading. □

**Peter Fusaro and Antoine Eustache are consultants at Global Change Associates in New York, an energy and environmental risk management consultancy. GCA is at the forefront of environmental risk management and has established consulting services to evaluate greenhouse gas, renewables and energy efficiency credits for project and structured finance. For more information, see: www.global-change.com*