

**CARBON KING****Economist Strikes Gold  
In Climate-Change Fight****Pollution Market  
Seen as Test for U.S.;  
One 'Surreal' Fall****By LEILA ABOUD**  
*March 13, 2008; Page A1*

LONDON -- The planet is getting warmer. Richard Sandor, a 66-year-old economist, is getting wealthier.

His company, London-based Climate Exchange PLC, has carved out a key role in Europe's booming trade in "carbon permits" -- essentially, buying and selling the right to pollute. Since 2005, the European Union has required major polluters to either cut the amount of carbon dioxide they spew, or buy pollution credits in the open market.



Justin Steele

Richard Sandor at his Chicago office in May 2006.

A big chunk of the action occurs on an exchange founded by Mr. Sandor, a one-time Berkeley professor who has morphed into a gregarious climate-change entrepreneur.

He's among the most successful investors trying to profit from rising environmental awareness, whether by speculating in energy commodities or launching wind-power companies. Last year, the total value of carbon permits changing hands -- whether on public exchanges or in private, off-market transactions, where most still occur -- nearly doubled to €40 billion, or about \$60 billion, according to Oslo-based Point Carbon, a market research firm.

Yesterday, Climate Exchange's stock jumped 16% after the firm reported a tripling in 2007 revenue to £13.6 million, or about \$27 million. That gives the company, which handles about 90% of the trading on carbon exchanges, a market capitalization of roughly \$1.31 billion. Mr. Sandor's 20% stake is worth more than \$260 million on paper.

It's an unusual mix of markets theory and environmentalism. "The right wing always suspects you of being a tree-hugging environmentalist and the left wing accuses you of being a money-grubbing capitalist," says Mr. Sandor, who back in the 1990s developed a markets-based system to cut down on pollutants causing acid rain.


Carbon trading is drawing intense interest from rivals. In January, NYSE Euronext launched its own carbon exchange, bringing the total number to at least eight globally. Citing "huge growth potential," the New York Mercantile Exchange plans to enter the field in this year's first quarter.

**WARMING UP**

- **Cutting Pollution:** Europe's effort to reduce greenhouse-gas emissions by trading 'carbon permits' is taking off.
- **Next Battleground:** As the U.S. considers similar approaches, competition could heat up.
- **The Debate:** Some economists favor taxing polluters, saying it could be more cost-effective.

The next big battlefield will be in the U.S., where Congress is currently debating setting up a system for regulating greenhouse-gas emissions. Lawmakers are considering a system like the one created by the 1997 Kyoto Protocol, a global United Nations-sponsored accord that set emissions-cutting targets for the 175 nations that ratified it. Europe's program was an early test run of the Kyoto Protocol, whose emission restrictions began hitting industry this year.

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The U.S. hasn't ratified Kyoto. But all three leading Democratic and Republican presidential candidates say they want the U.S. to do more to fight climate change, and would likely set up a carbon-trading program.

Carbon permits are traded much like physical commodities -- gold, oil or pork bellies. Each government-issued permit grants its holder permission to emit a ton of carbon dioxide into the air. Carbon Exchange makes money by taking a commission on each trade and by charging membership fees.

### 'Cap and Trade'

So-called "cap and trade" programs like Europe's are intended to give polluters a financial incentive to clean up their act. Governments set emissions caps, and companies that beat them can trade their pollution credits to other firms willing to pay to pollute. Over time, the caps are lowered, making it costlier to choose to keep polluting.

About 70% of carbon permits still change hands off the market, in private transactions between companies or financial institutions. Trading on an exchange is often more efficient than trying to find a buyer or seller alone. But for bigger trades, many companies and banks still prefer to do private deals so they don't tip off competitors or cause drastic swings in the still-nascent market.

Still, Mr. Sandor's exchange is a key piece of the financial infrastructure underpinning this system. It gives these companies -- mainly industrial giants like power generators, steel mills and cement makers -- a clear idea of the market price of carbon both currently and well off into the future. It also lets hedge funds and other investors speculate in the permits just as they would in other assets, such as gold or stock.

Some economists argue for taxing polluters instead, including Nobel prize-winning economist Joseph Stiglitz, and former chairman of President Bush's Council of Economic Advisers, Gregory Mankiw. A carbon tax, they say, would be more transparent and less vulnerable to lobbying by industries trying to win higher caps for themselves.

Last month, a report by the Congressional Budget Office said a carbon tax could achieve the same emissions reductions "at a fraction of the cost" of a cap-and-trade system. The savings stem partly from the fact that such a policy is simpler to implement than building a carbon market.

Other criticisms of carbon trading focus on the financial wizards -- such as Mr. Sandor -- who design and run the markets. "Financial resources are being redistributed to the banks and traders rather than paying for technological innovations to cut emissions," says Carlo Stagnaro of the Italy-based economic think tank Istituto Bruno Leoni, who just published a paper on the European Union's emissions-trading system.



**Richard Sandor**

Europe's own system shows evidence of these strains. Governments there initially yielded to industry pressure and allocated too many carbon permits, giving companies little immediate incentive to cut their emissions.

The system, which has been up and running only three years in Europe, hasn't yet produced big reductions in emissions. But carbon trading has boomed -- handing a tidy profit to banks, traders and exchanges such as the one founded by Mr. Sandor. Power companies and heavy industry trade carbon continuously to try to make money off price fluctuations and to hedge their future risk, as well as to comply with Kyoto rules.

Robert Stavins, an environmental economist at Harvard's John F. Kennedy School of Government, agrees

Europe's carbon market isn't perfect, but defends the role of financiers. "The only way we can fight climate change is if there is an opportunity for businesses and individuals to make a fortune off of it," he said.

That's what Mr. Sandor has done. "I am a capitalist who runs a business and has to deliver value to shareholders," he said during a recent interview at the Ritz Hotel in London. "I consider myself to be an environmentalist, but I divorce those sentiments from my day job."

### CARBON EXCHANGES

Trading in greenhouse-gas emission credits more than tripled in volume in 2006. Exchanges established under the European Union's emissions trading scheme represent nearly two-thirds of the global trading volume.

The New South Wales Greenhouse Gas Abatement Scheme and the Chicago Climate Exchange, for buyers who voluntarily want to greenhouse gases, also saw trading volumes increase in 2006.

#### Transactions on Allowances Markets

Volumes (MtCO<sub>2</sub>e\*) 2005 2006

EU Emissions Trading Scheme



New South Wales



Chicago Climate Exchange



Source: World Bank

\*MtCO<sub>2</sub>e: Million metric tons of carbon dioxide equivalent, a universal unit that measures emissions of six greenhouse gases.

Mr. Sandor, a dapper professor in close-cropped hair and tailored suits, started his career teaching economics and finance at the University of California, Berkeley, where he developed ideas for trading intangible things, like interest rates or mortgages, on a market.

He later made a name for himself at the Chicago Board of Trade where he did leading work on developing financial futures markets in the U.S. Today he lives in Chicago with his wife, a painter, in a home where the walls are covered with his extensive collection of 20th-century photography.

He first envisioned a carbon market long before many people had heard of global warming. In 1992 at the United Nations Earth Summit in Rio de Janeiro, he presented an academic paper on how markets might be used to reduce carbon emissions.

Of the conference, Mr. Sandor recalls: "There was more tie-dye there than at a Grateful Dead concert. It felt like a movement." Indeed, the event laid the groundwork for what eventually became the 1997 Kyoto Protocol.

It was in Brazil, eating shrimp and sipping a caipirinha on the beach, that Mr. Sandor says he first thought about setting up his own carbon market. "I know how to pioneer new markets," he recalls thinking. "I've done it before."

In the late 1990s he finally got his chance -- or so he thought. At that time, countries around the world started signing on to the Kyoto Protocol.

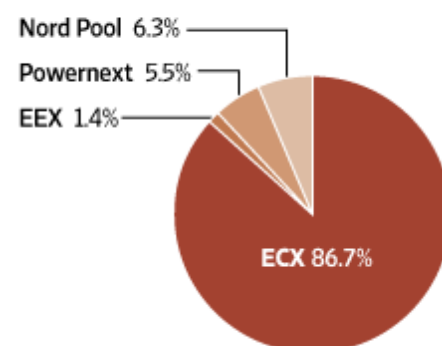
He assumed the U.S. would sign on, too, so he founded the Chicago Climate Exchange in anticipation of a U.S. carbon-trading boom. However, soon after taking office, the Bush administration declined to ratify Kyoto, arguing it would hurt U.S. companies' competitiveness because developing countries like China and India weren't required to curb emissions.

Mr. Sandor's dream fizzled. With no treaty, U.S. companies wouldn't be required to cut carbon emissions. He was left with a company that basically had little reason to exist.

But rather than dumping it, he decided to convert the Chicago

### IN THE EUROPEAN MARKET

Leading European Exchanges, 2007 Market Share



Source: Point Carbon

European Climate Exchange (ECX)<sup>1</sup>  
Based in London

Climate Exchange into a system that companies could join to voluntarily reduce their emissions.

By 2003, he teamed up with a friend in London, insurance executive Neil Eckert, to take everything learned in the U.S. experiment and apply it in Europe, which was then just gearing up its own trading system. So they set up a separate carbon-trading market in London, the European Climate Exchange. Mr. Eckert later became its chief executive, a position he holds today.

Mr. Sandor had an ace up his sleeve: He sat on the board of IntercontinentalExchange, or ICE, which operates Europe's leading energy exchange, trading oil, gas and electricity. ICE agreed to host Mr. Sandor's new European Climate Exchange on its system as part of an undisclosed revenue-sharing agreement.

That deal was an important part of Climate Exchange's success at beating rival markets: The ICE affiliation instantly put his exchange in front of Europe's commodity traders.



Neil Eckert  
**Neil Eckert**

Trading began at the start of 2005. It wasn't smooth sailing. On May 12, 2006, EU regulators shocked the market by posting data showing that national governments had allocated far too many permits. For example, Sweden's actual emissions were around 10% below the number of emissions allowances the government handed out. The Netherlands, Belgium, Spain and France confronted a similar situation.

Abyd Karmali, head of Merrill Lynch's carbon-trading business, was in Cologne, Germany, that day attending a carbon-market conference. People were huddled around computers, watching prices fall like a rock.

"It was surreal," said Mr. Karmali. "People were frantically calling their trading desks."

In three short days, the price of carbon collapsed 60%. Mr. Karmali called those events "a litmus test" for Mr. Sandor's exchange. "It showed us that the infrastructure worked and that the market could withstand future shocks."

Learning from their mistake, European regulators later tightened the emissions caps.

Europe's carbon market continued to grow, and with it, Mr. Sandor's company. In trading yesterday on London's AIM, the 16% jump in its share price, to 1,441 pence (\$28.89), followed the company's report that volumes grew on both the London and Chicago exchanges. But profitability is still elusive: The firm posted a net loss of £4.1 million last year, although that was an improvement over the year-earlier loss of £10.5 million.

Despite its role in Europe's fast-growing carbon market, Mr. Sandor's firm is still a minnow in the shark-infested waters of commodities trading. It's run from a small office in the financial district of London where a dozen or so employees work in a single big room lined with tattered carpet.

There's no traditional trading floor -- the actual trading is done entirely online. Commodities traders at banks world-wide have the exchange's software on their screens and can buy and sell carbon permits at the click of a mouse button.

Established in 2005  
Trading Members: 85

**Powernext**<sup>2</sup>

Based in France  
Established in 2002 as a spot market for electricity  
Trading Members: 96

**Nordic Power Exchange (Nord Pool)**<sup>3</sup>

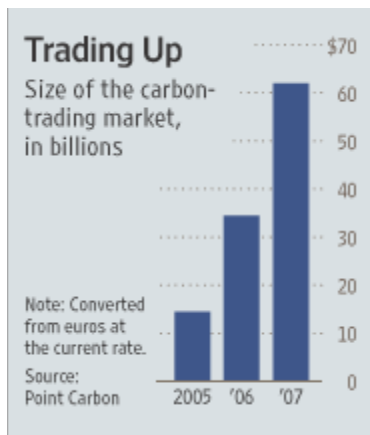
Based in Oslo  
Established in 1993. Has traded EU allowances since 2005  
Trading Members: 348

**European Energy Exchange AG (EEX)**<sup>4</sup>

Based in Leipzig  
Founded in 2007 in the merger of the Leipzig Power Exchange and the Frankfurt-based European Energy Exchange  
Trading Members: 190

**Energy Exchange Austria (EXXA)**<sup>5</sup>

Based in Austria  
Established in 2002  
Trading Members: 40



Companies that must comply with Kyoto rules can also buy and sell on the exchange. For instance, say, a German utility with excess credits would be free to sell them to a Japanese steelmaker firm that wanted them. Trades are cleared by the exchange, which acts as a kind of guarantor as well, cutting down on credit risk for the buyer and seller.

A 2008 permit entitling the bearer to emit one ton of carbon dioxide is currently trading just under €22, up from €17 or so a year earlier.

At the end of each year, regulated companies must hold permits representing their total emissions over that period. A fairly typical coal-fired power plant might emit anywhere from five million to 15 million tons of carbon dioxide a year, depending on its size and other variables.

### Bigger Rivals Loom

The risk for Mr. Sandor is that his firm will get beaten by much bigger rivals when the U.S. sets up its own system for cutting greenhouse-gas emissions. Analysts estimate that the U.S. carbon market would be about three times the size of Europe's, a windfall that is sure to attract rivals.

"We're going to keep succeeding," Mr. Sandor says. Among other things, he and Mr. Eckert are trying to stay one step ahead by trying to gain footing in other new markets.

Last December they signed a memorandum of understanding with China National Petroleum Corp. to explore setting up an emissions-trading platform in Beijing. And in India the firm is exploring establishing a voluntary market like the one originally set up in Chicago a decade ago.

"We view ambiguity as an opportunity, not as a deterrent," Mr. Sandor says.

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