



Everyone talks about the weather. But Europe's monopolistic weather data policies actually make it harder for anyone to do anything about it. Without access to reasonably priced weather information, weather risk management firms cannot offer energy companies in Europe the benefits of temperature swaps that their U.S. competitors now enjoy

Despite Europeans' outrage at and condemnation of President Bush's rejection of the Kyoto Protocol, Europe has actually been behind the curve on taking simple and practical steps to mitigate climate risk. On the climate change issue, Europe continues to demonstrate its preference for "government fiat" programs that are difficult to implement and unlikely to work. By contrast, U.S. policies addressing the collection and widespread dissemination of weather data have encouraged successful private sector initiatives that could solve problems related to increased weather volatility. While the Europeans pursue "command and control" solutions, the U.S. has been

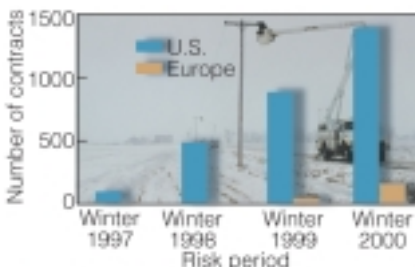
BY RAVI V. NATHAN

quietly incubating an industry that could revolutionize the management of climate risks worldwide.

Over the last few years, there has been explosive growth in the business of weather risk management. Begun by a handful of energy and reinsurance companies during the El Niño winter of 1997, the weather risk market has since transferred \$7.5 billion in notional value of weather risk to the sellers of weather derivatives and insurance products.

The premise behind the weather risk market is simple. For every energy company that suffers from a mild winter and low demand for heating fuels and electricity, there is a construction company that benefits handsomely from extra construction activity during warm and dry winter months. By arranging an offsetting temperature swap between two such companies, a weather market maker almost magically succeeds in eliminating the weather risk from both businesses, in the process capturing the bid-offer spread as a reward for its effort.

This concept is even more powerful



Source: Weather Risk Management Association (www.wrma.org)

Growth in weather risk contracts steadily rises in the U.S. and Europe

With increased competition, risk premiums and bid-offer spreads have fallen across the board, making weather hedging an attractive proposition

when extended to the global arena, given the low or even negative correlation between weather events around the world. Even the dreaded El Niño does not have uniformly negative impacts, as is commonly believed. For example, while Peru suffered from anomalously high rainfall during the last El Niño, American auto insurance companies benefited from lower than expected auto insurance claims thanks to mild weather in the Midwest and Plains states.

The efficiency of weather-risk portfolio management is only limited by the uptake of weather hedges by end users all over the world. Surprisingly, the increase in weather volatility caused by global warming is beneficial to the weather market, because it induces more end users from different industries and regional segments of them to hedge their weather risks. The resulting diversity of end-user demand gives market makers the natural offsets to the weather risks already in their portfolios. An active market for weather risks generates the price signals necessary to transfer risk to entities whose portfolios are best positioned to hold them and at the best possible price.

Weather risk management companies made up of commodity traders, reinsurance companies, and banks are acutely aware of the benefits of building a global book of weather risks. Today the Weather Risk Management Association has more than 70 corporate members from all over the world which among them have the capacity to support this market with hundreds of billions of dollars of risk capital. With increased competition, risk premiums and bid-offer spreads have fallen across the board, making weather hedging an attractive proposition. The market trades weather

risks based upon temperature, precipitation, wind speed, stream flow, lake heights, sunlight hours, and many other weather metrics.

Insurance policies based on precipitation amounts are ideally suited to less developed economies where subsistence farmers bear the tragic consequences of drought and floods. Western-style crop insurance programs do not work in the poorer countries of Asia and Africa because of the high cost of administration and lack of infrastructure for measurement of crop losses. By contrast, a weather measurement instrument is inexpensive and easy to establish and monitor on a daily basis. Claims based on accumulated precipitation over a growing season are easy to settle without the moral hazard issues involved in the measurement of yield on a farm-by-farm basis.

Dear data

The common denominator for all the pricing models used by the industry is weather data. A global climate data base covering all countries and regions is an essential step for the accurate evaluation of weather risks. All researchers and business firms agree that access to accurate and inexpensive weather data is critical for global weather and climate forecasting and, in turn, accurate risk management. There is nearly universal agreement that weather data are a global public good and should be treated as such by governments and policymakers.

Unfortunately, European nations'

policies on weather data contradict their stance on global warming and its effects. The policy of the U.S. National Weather Service is that the taxpayer has paid for the primary collection of these data. It therefore makes historical and real-time weather data available to all comers for the cost of reproduction and dissemination. As an illustration, an insurance company that wishes to underwrite weather risk can purchase historical surface observations at 8,000 locations in the U.S. for less than \$2,000.

By contrast, the Europeans have taken the view that historical weather data are a promising revenue generator—despite the fact that taxpayers, including businesses, have already paid for their collection. They use their data monopoly to charge commercial enterprises an extortionate price for the use of the data. For example, Meteo France, the U.K. Met Office, and their German counterpart charge from \$1,500 to \$1,750 for a single location. But they are one-upped by the Danish Meteorological Institute, which marks up the price to \$4,500 per station. However, all these practices pale in comparison to those of the Netherlands and Finland, which extort an unbelievable \$6,000 per station.

A weather market maker that wishes to build a European weather data base of 1,000 locations will be looking at a bill of \$3 million to populate it, assuming an average cost of \$3,000 per station. It is difficult to reconcile the European moral stance on the Kyoto Protocol with the extraction of monopoly profits from the dissemination of a valuable public good that is fundamental to the management of climate change.

The ultimate losers are the citizens of Europe, who are prevented from

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reaping the benefits of a global market for weather risk. Extremes in temperature, precipitation, and wind speed can have a severe impact on the bottom line of businesses and cause downstream effects on jobs, shareholder returns, and economic efficiency. These real costs are evident from the comparison of growth in the U.S. and European weather risk markets shown in the figure.

Measured across successive winter seasons, the number of U.S. weather market contracts has grown from almost zero in 1996 to nearly 1,400 in 2000. Over the same period, Europe has seen only 160 contracts signed. Measured by the notional value of weather risk transferred, the U.S. transacted \$1.8 billion in contracts last winter alone, compared to \$49 million for all of Europe. The U.S. market today is 36 times the size of the European market and growing. Even tiny Japan, which freely disseminates weather data, transacted \$29 million in weather risk over the same period. Much of the discrepancy in the size of the regional weather markets can be explained by the policies of the respective governments and the resulting costs and access to weather data.

Ironically for the Europeans, the problems of sustaining a monopolistic cartel are becoming evident as each country seeks to profit not only from its own weather data but that of other European countries as well. While the bureaucrats sputter and complain about the "leakage" of weather information, the U.K. Met Office has recently announced a joint venture with a private firm to sell weather data for a large number of European locations at a lower price than prevails locally. Hopefully for the suffering businesses of Europe, this competitive "outrage" will lead to a price war between European Met offices and an end to a shortsighted and self-defeating policy. ■

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Should project developers place orders now for future turbines manufacture?

Arc developers building enough electricity generation sites with gas turbines to absorb demand, or are too many in the works already?

Is it smart to buy or sell on the secondary market?

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Power Plays: Trends and Risks in the Global Market for Gas Turbines

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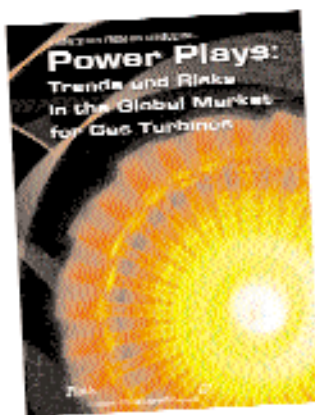
RDI Consulting has developed scenarios for the future turbine market, and assessed the implications for power plant developers. The results of this research have relevance for companies operating worldwide.

Have developers been too bullish? Where can the turbines on order be profitably installed for power production?

What options are available within a secondary market?

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