

Is your risk system up to date?

Thomas Gros, chief executive officer at OpenLink, discusses the recent evolution of risk in energy markets

Energy markets have evolved to such a level of sophistication that many of the legacy risk management systems are no longer sufficient. The energy market learning curve that began its steep, upward slope with the first derivatives contracts in the 1980s took a quantum leap in the years following the Enron implosion.

A key ignition point that led to this quantum leap was the transfer of talent. Smith Street (Houston's downtown energy corridor) moved to Wall Street, combining world-leading energy trading talent with the credit discipline and risk systems that are the trademarks of the world's largest banks. Unfortunately, the majority of these systems were not built to handle the unique complexity of the energy markets – most notably, the extreme volatility of these markets, the specific risks associated with physical delivery, and the cross-asset linkages that impact all financial portfolios.

Cross-asset linkages

Global energy markets, especially crude oil, are now intrinsically linked to global capital markets. Moves in the price of crude oil have an immediate and material impact on stock prices and currencies. Ironically, it was the opposite characteristic – the relatively uncorrelated price movement of energy to other financial markets – that first caught the attention of capital markets traders. Everything else being equal, the addition of uncorrelated risk to a portfolio enhances its risk-reward balance.

Energy markets have also extended their linkages to non-financial markets, adding yet more complexity to the risk equation. Refined products are now connected to agricultural markets. This is most clearly seen in ethanol-blend gasoline and its price impact on corn, sugar and beef markets.

In Europe, carbon is now a key element in the total energy equation as power generators choose between lower-emission fuels (such as natural gas) or higher-emission fuels (such as coal) balanced with an appropriate number of carbon credits. Many traders believe carbon will soon become a key element in energy trading around the world.

The underlying fundamentals of the energy markets are shifting at an unprecedented rate, creating more linkages, opportunities and risk. Crude-oil producers that learned to be profitable at \$18 a barrel now find themselves in a sustained period where price exceeds \$55 a barrel. Projects that were uneconomic for decades (for example, tar sands and ultra-deep water prospects) now look viable.

The world's most volatile markets

Extending the lives of nuclear power plants, increasing LNG imports, rising use of renewable energy sources, slow increases in US refining capacity, terminal decline of the largest crude reservoirs – these and so many other factors have added and will continue to add volatility to the world's riskiest markets. Risk models that were built in the context of liquid financial instruments, with no concept of volatilities that can exceed 50% and even 100% (well beyond the capacity of Black-Scholes calculations to be valid), are obsolete.

This level of volatility is not likely to decrease. The physical nature of energy makes it susceptible to the whims of weather. Much of the world's crude oil is produced in the most unstable political environments. A key component of the energy markets – electricity – is not storable and is therefore always subject to radical price spikes. Infrastructure necessary to increase supply, whether it's a nuclear power plant, an LNG terminal or an offshore platform, takes years – many times, decades – to contribute.

The challenges of physical delivery

It gets worse. Nearly all of the risk models developed for financial markets ignore a key element in energy markets – physical delivery. Wellhead freezes are not elements normally contemplated in equity, fixed income or currency risk systems. The need to schedule on ships, in pipes or down wires is foreign to nearly all of these. Yet, the most sophisticated players – whether they are banks or large integrated majors – view participation in the physical markets as a key source of intelligence, liquidity and risk mitigation.

A risk checklist

Given these challenges, it is important to consider a few key points when examining the vulnerabilities in your energy risk platform:

- Does the system allow you to manage the entire trading lifecycle from deal entry through risk analytics through physical delivery for all commodities in your portfolio?
- Does it allow you to connect seamlessly with your comparable systems for capital-markets trading allowing a true cross-asset view?
- Is the system based on a fundamental understanding of commodity and energy markets, or is it a capital markets solution that has been modified to handle energy?
- Is the software a hodgepodge of modules loosely integrated or is it an elegant front-to-back solution?
- Did the same team of developers who built the tools also build a product for capital markets trading?

Conclusion

The transfer of talent in the energy market continues. Indeed, it now appears that Wall Street is moving back to Smith Street as major financial players, including Citibank, Merrill Lynch, Deutsche Bank, Fortis Bank and Bear Energy, increase significantly their Houston operations. This flow of talent also extends to Europe, particularly London, and Asia.

When talking about risk and markets, it is a question of sophistication. These risks and linkages have always existed. Weather risk had been a key factor in the price of natural gas and power long before the first weather derivatives contract ever traded. Crude oil has always had a strong effect on the world's economy. What has changed is that we can now observe and act on these risks much more explicitly. The combination of world-class talent and systems has made this so, and this is a trend that will only continue.

About OpenLink

Founded in 1992, OpenLink is a leading developer of cross-asset trading, risk management and operations processing software solutions. The company's Next Generation eXtensible (NGX) platform supports the most rigorous business requirements of firms trading in virtually all asset classes, including crude products, natural gas, electricity, weather derivatives, emissions credits, interest rate derivatives, credit derivatives, hybrid/structured products, fixed-income securities, foreign exchange, money markets, metals, soft, and other commodities. OpenLink's global client base includes 120+ clients, such as Austin Energy, APC Austrian Power Vertriebs GmbH, Bank of America, Bridgeline Holdings, BKW FMB Energie AG, Calyon, Coral Energy, Citigroup Global Market, Inc., D-Energia Kft., Deutsche Bank, EDF Energy plc, Enbridge, Energy Transfer Partners, HESS Corporation, Nexen, NEW Energie GmbH, Shell, Statoil and Vattenfall Europe Trading. Headquartered in Long Island, New York, and with offices in London, Houston, New York City, Berlin, Vienna, Sydney and São Paulo, OpenLink employs more than 500 professionals worldwide.



Thomas Gros (above) began his career in global markets nearly two decades ago as a financial analyst at British Petroleum's exploration division in London, on the eve of the Gulf War. Shortly after natural gas futures began to trade on NYMEX, he was named the founding trader at BP Gas in Houston.

In 1994 he moved to Chemical Bank (now JPMorgan Chase) as the founding trader of its newly-formed NY commodities trading group, responsible for managing the bank's commodities exposures. In 1996, he moved to Enron where, in addition to running numerous sales trading teams, he led the teams that grew to be the largest liquidity providers in the fledgling weather and emissions derivatives markets. In 1999, he created and led the team that promoted the development of a commodity bandwidth market. In 2002, Gros joined Reuters as executive vice-president and global head of the commodities and energy division. He later led the institutional equities and new markets teams and served as a board director on Reuters' regulated entity. He joined OpenLink as chief executive officer in April 2007.

Gros has appeared prominently in numerous publications, including *The Wall Street Journal* and *The New York Times*. He has also been a guest market commentator on CNBC and National Public Radio and a featured speaker at the National Press Club. He is listed as the primary inventor on Enron's patent for bandwidth trading.

Gros earned his degrees in Aerospace Engineering from Georgia Tech and a Masters in Business from the MIT-Sloan School.

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