WHITE PAPER

AVOIDING THE BLIND SPOTS IN ENERGY TRADING: MARKET DATA AND RISK ANALYTICS

Energy and commodities

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How to make the volatility smile

A large, U.S.-based power company has over 260 different sources of information hitting its trading desks during the typical trading day. A team of analysts scrape external feeds and data bases, internal systems, news sites, and other structured and unstructured large data sets. That data then gets cleaned, consolidated and processed, so it's ready for analysis, available to various internal users in multiple geographies.

"The current process of getting accurate and timely data from multiple sources and vendors is manual, time consuming and error-prone. It prevents quick decision-making on pricing trades and hence, results in missed market opportunities," said the head of trading for the above-mentioned company.

In other words, even the companies that invest heavily in data acquisition and analytics are struggling to scale and stay abreast, especially with unpredictable political events and market volatility escalating the urgency for fast, accurate information. Uncertainty, combined with an ever-increasing volume of trade data, means extracting insights in an efficient and scalable way can be very complicated.

For a major integrated energy company, access to high quality, consolidated data is crucial for building 3D charts, forward curves, volatility surfaces and visualizations around its natural gas production and power generation assets. Additionally, that data can be used to perform a wide range of risk calculations, such as Value-at-Risk (VaR), Profit-at-Risk and Potential-Future-Exposure.

"All our data comes from our internal risk system which is maintained overseas, so we have no control over when and how we get our data. If we don't get monthly granular forward curves, we can't calculate Mark-to-Market (MTM) on our physical and paper forward trades," said the senior vice president of trading at another energy producer.

The processing of all this data varies from company to company and system to system, often leaving much to be desired. Yet, decisions must be made, and those responsible for approving these decisions must act on the best available information.

Data: The raw material alpha is made of

For natural gas and electricity producers, energy traders, or anyone who manages physical and financial positions around assets, there may be no better hedge against the trader's lament than good, clean, reliable data.

In a volatile world economy, collecting, validating and transforming large, unpredictable volumes of real-time and historical market data – in a predictable, repeatable and efficient manner – can be a challenge for in-house managers. Running such an operation may turn into a significant investment, involving:

- Managing multiple data vendors.
- Hiring top analysts and data scientists.
- Maintaining the technology infrastructure.
- Providing access to data throughout the organization and across multiple geographies.
- Ensuring system security against cyber threats.

FIS' market data solutions, such as FIS® Data Analyzer - Energy Edition (formerly MarketMap Energy) and FIS® Commodity Data Services, give energy companies, utilities and traders access to raw market data, as well as provide consolidated and enhanced data, based on data validation methodologies and quantitative analysis. These tasks are performed by a qualified, captive FIS team of data analysts and former Wall Street modelers and traders. Along with sophisticated charting, analysis, modeling, reporting and forecasting tools, FIS helps firms extract insights faster and conduct reliable data manipulations in a high-speed data storage environment.

"The volatility of physical energy commodities means that default rates are often high or uncertain, boosting the value of credit risk analytics. And for traders, price volatility and the desire to maximize the value of their assets mean it is now more important than ever to acquire and provide strong market data and mitigate any pricing risks."

Chartis RiskTech Quadrant® 2017 for ETRM

"Our solution involves clearly defining the commodities, regions, price assessments and indices critical to any given business," said Kurt Moser, COO of FIS® Market Data Suite (formerly MarketMap). "A reliable data aggregation service will have the methodologies in place to accomplish just that."

FIS market data services provide flexibility and scalability to calibrate the data scope up or down, ensure high data quality and simplify access to information across multiple geographies – in a fast, secure and reliable way. A range of bespoke, out-of-the box and third-party forward curves, as well as proprietary analytical functions and flexible integration mechanisms, make it easy to manage, manipulate and analyze energy and commodity data on the fly. The offering provides confidence that the information received has been vetted for redundancies, copyright infringements, irrelevancies and gaps – and normalized for actionable decision support – all without burning up precious enterprise bandwidth in the process. As a result, the externally hosted software, combined with secure, reliable and user-friendly interfaces, lend new agility in responding quickly to moving market opportunities.

The difference between forecasts and forward curves

Current political and market unpredictability breeds "prognosticator fatigue." It raises the question of how, if at all, energy producers and traders can gain a more holistic view of global markets and manage price risk more effectively.

Forecasts are limited as they "rarely fall outside of a reasonably tight 'consensus' band."[1] Conversely, forward curves don't typically go out long enough to provide the granularity needed to hedge with confidence. However, an integrated combination of sophisticated charting and forward curve modelling tools, based on a wide range of independent, high-quality market data and analysis, can provide energy traders with a more qualitative picture of the market.

FIS® Commodity Risk Manager developed a set of commodity forward curves that are marked at the end of each trading day. The curves are constructed using unbiased, raw data from over 50 primary and independent market sources. With over 900 forward curves, volatility surfaces and correlation term structures, Commodity Risk Manager offers curves that can have monthly granularity from spot to as long as 84 months. The value of the curves is mainly derived from the neutrality of both the raw data and its processing, since Commodity Risk Manager is not engaged in any trading. In addition, Commodity Risk Manager receives candid feedback from its user community that comprises of some of the world's largest commodity producing, consuming and trading companies.

[1] *http://www.timera-energy.com/the-dangers-of-mixing-forecasts-and-forward-curves/*

"Independent market data is a cornerstone of granular risk analytics for correct trade valuations, price validations and VaR calculations. Our solution covers a wide range of commodities, from crude oil, refined petroleum products, natural gas, power, base and precious metals, to softs/agricultural, freight/maritime, pulp and paper, coal, weather, petrochemical, emissions, and currency markets. Accurate, monthly granular, seasonally adjusted valuation adds up to accurate risk reporting, which helps to reduce overall risk."

TIM SMITH, COMMODITY RISK MANAGER, COO

Evaluating credit risk

Uncertainty in natural gas and power prices, and their evolving price relationships, brings cross-correlation management and risk modelling to the top of energy executives' agendas. Natural gas production is taking place in hard-to-reach areas that makes distribution expensive, bringing commercial lending back into the energy space. With increasing levels of capital required to enter into the production business, banks are increasingly participating in the retail lending space for commodities businesses.

At the same time, hedging portfolios evaluated by Monte Carlo VaR models, which simulate returns using correlations, should be recalibrated for shorter correlation windows to recognize the new normal.

Corporate investors and banks that finance energy producers and retail operations can better gauge the net cash flow volatility of financial hedge positions, using both VaR and at-risk correlations, over time, based on a wealth of historical data. Increased price exposures to supply-demand characteristics in non-US markets brings new challenges to hedging programs, including the ability to source illiquid basis location data, and acclimate to a new phase in the production cycle. The ability to weigh the importance of historical events, while also adjusting to the current environment by considering correlations generated using shorter return windows and implied volatilities, will provide more accurate risk measures, as the US energy landscape continues to evolve.

Cracking the volatility smile in energy trading

Finding alpha and ensuring that margins remain intact in a highly volatile political and market environment can be challenging. High-quality, reliable market data, coupled with shrewd risk analytics, in separate modules or as an integrated, consolidated solution, will enable energy traders to avoid the blind spots and turn volatility into a competitive advantage.

FIS solutions for energy and commodities

FIS helps utilities and retailers, pipeline and storage operators, marketers and traders, as well as integrated energy companies, compete efficiently in global markets, by streamlining and integrating the trading, risk management and operations of physical commodities and their associated financial instruments. Through real-time data, connectivity and analysis, FIS solutions help you achieve transparency and regulatory compliance, optimize end-to-end transaction and operational lifecycles, and meet time-to-market needs with flexible deployment options. As your technology partner, we can help take advantage of the latest innovation and explore new opportunities.

About FIS

FIS is a leading provider of technology solutions for merchants, banks and capital markets firms globally. Our employees are dedicated to advancing the way the world pays, banks and invests by applying our scale, deep expertise and data-driven insights. We help our clients use technology in innovative ways to solve business-critical challenges and deliver superior experiences for their customers. Headquartered in Jacksonville, Florida, FIS is a Fortune 500® company and is a member of Standard & Poor's 500® Index.

www.fisglobal.com

getinfo@fisglobal.com

twitter.com/fisglobal

linkedin.com/company/fis

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