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Automating Energy and Commodity Trade
Surveillance – The Time is Now!
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Executive Overview
Firms that trade energy and commodities are recognizing the importance of surveillance technologies that monitor proprietary, customer, and employee trading activities for potential inappropriate behaviors of interest. In response to evolving regulatory practices and case law, firms are expanding their compliance mandate to substantially include comprehensive trade reviews for possible instances of market manipulation, insider trading, disadvantaging to customers, and other inappropriate trade practices. Firms that fail to implement rigorous surveillance processes risk exposure to stiff financial and criminal penalties as well as negative impact to their reputation in the marketplace.

Introduction
Several of the largest energy trading firms have, historically, built proprietary systems that begin to look for unique trading activity. However, even firms with installed solutions are looking to enhance their approach – often with third party solutions that offer a proven approach to behavior detection and provide quality alert generation, alert disposition, reliable electronic audit trail, trade analytics, and alert/case management. Recently, financial services firms, who are major players in trading energy and commodity products, have taken the lead in extending their culture of compliance to these business areas globally. In some cases, financial services firms are applying the sophisticated trade monitoring technology solutions that have served them well in monitoring their broad array of securities such as cash equities, options, fixed income, foreign exchange, and structured products to their energy and commodity businesses. In parallel to new scenarios for behaviors of interest specific to the energy and commodity sector, the behavior detection scenarios used by these firms in the general securities markets also serve as an excellent point of departure for processing the unique data structures ascribed to both physical and financial energy and commodity instruments traded either over the counter (OTC) or on an exchange.

Passing the trade and reference data that resides in a firm’s selected Energy Trading and Risk Management (ETRM) system(s) to the firm’s trade surveillance system is an important step in the monitoring process. Surveillance systems that interface with the ETRM can be deployed quickly and produce quality alerts. These let the compliance analyst focus on investigating unique activity that may not be in accordance with internal policy and procedure, or in the worst case, violate regulatory requirements.
This paper serves to address several frequently asked questions related to automated behavior detection, emanating in the minds of Energy Risk and Compliance professionals.

**What is driving current interest in Energy and Commodity trade monitoring systems?**

Some of the main ideas that are driving the interest of firms in enhancing their trade monitoring sophistication and capacity include:

- Increased regulatory attention and regulator power
- New thinking on the quantification of – and factors influencing - reputational risks.

While various regulatory policies from multiple entities apply across the energy and commodity sector, the activity by the CFTC, the FERC, and the FSA are important drivers of change related to trade monitoring:

- **CFTC** - The Commodity Futures Trading Commission (CFTC) is empowered under the Commodity Exchange Act (CEA) and monitors on-exchange trading of futures and options contracts based on commodities such as crude oil, natural gas, heating oil, propane, gasoline and coal. The CFTC does not regulate trading of energy products on the spot (cash) or forward market, but are clearly interested in the interaction between the physical and futures markets and monitor for potential for manipulation of prices in one market that affect prices in the other.

- **FERC** - The Energy Policy Act of 2005 extended substantial regulatory powers to the Federal Energy Regulatory Commission (FERC). Today, FERC considers itself an enforcement agency with a stated goal to be “firm but fair”. FERC has demonstrated its focus on egregious violations – especially regarding fraud or manipulation - of core rules regarding any FERC statute, rule, regulation or order (e.g., the Natural Gas Act (“NGA”), the Federal Power Act (“FPA”), and the Natural Gas Policy Act (“NGPA”) and on companies with weak compliance plans. The Commission maintains the ability to levy civil penalties for violations of these statutes, or any rule, regulation, or order imposed by the Commission under these statutes up to a maximum of $1 million per violation per day.

- **FSA** - As early as 2007, the Financial Services Authority (FSA) stated that it would be monitoring potentially abusive trading practices more closely and ensuring that controls are in place.

- **FTC** – The Energy Independence and Security Act of 2007 (EISA) authorized the Federal Trade Commission (FTC) to implement a rule prohibiting manipulative or deceptive behaviors for buying or selling crude oil, gasoline or petroleum distillates in wholesale markets. In August 2009, the FTC adopted the Final Rule that went into effect on
November 4, 2009. The Rule carries substantial fines up to $1 million for each day that an uncorrected violation occurs.

“To understand the relationship between futures prices and physical natural gas prices, it is necessary to recognize that some futures contracts become physical natural gas contracts, or, in the terms of the industry, “go to delivery.” In addition, there is a class of monthly physical transactions (called physical basis transactions) that tie their prices directly to the settled futures price. These transactions are so common along the East Coast and the Gulf of Mexico that monthly indices in these regions depend almost entirely on physical basis transactions.”


While jurisdiction debates exist, the intent of regulators to work together is evident. For example, in 2005, FERC and CFTC entered into a Memorandum of Understanding (MoU) to coordinate on activities of mutual interest. Subsequently in Nov 2006, the FSA and CFTC signed an MoU for cooperation between the agencies on exchange of information that supports cross-market surveillance related to abusive or manipulative trading practices on US and UK derivative exchanges. And in Aug 2009 the two agencies announced increased level of cooperation giving CFTC access to the Intercontinental Exchange (ICE).

It is clear that participants in the energy trading markets are subject to the attention of an empowered global regulatory community that is establishing common ground in their approach to behaviors such as market manipulation. Further, these entities are demonstrating cooperation in identifying activities that violate the rules and regulations.

What types of behaviors are garnering attention?

Market Manipulation looms as a primary area of concern. Subtle differences exist between regional standards. In the US, the Commodity Exchange Act prohibits manipulation or attempted manipulation of market price for any commodity. However, manipulation has not been defined statutorily and there are no specific tests to determine, if manipulation has occurred. Most legal cases brought under “attempted manipulation” require only the intent to create an artificial price – it is not necessary that it was successful or would have been likely to cause and artificial price. In the UK, the financial services and Markets Act of 2000 prohibits manipulation similar to the US regulation although there is no requirement for regulators to prove manipulation beyond reasonable doubt. “Misleading behavior” and “market distortion” are both also prohibited.

What cases and settlements provide some guidance to market participants interested in assessing their trade surveillance capabilities?
Several recent CFTC filed cases and settlements are being cited as drivers of enhanced trade surveillance capabilities among energy and commodity market participants. Primarily, the priority seems to center on three topics (1) market manipulation, (2) trading practices, and (3) position limit monitoring.

**Market Manipulation**

- On July 24, 2008, the CFTC filed a civil enforcement action in the United States District Court for the Southern District of New York alleging that a Holding company, two subsidiaries, and two employees manipulated and attempted to manipulate the settlement prices of the NYMEX crude oil, New York Harbor heating oil and gasoline futures contracts in March 2007. The defendants allegedly employed a scheme of “banging” or “marking” the close, which refer to the practice of acquiring a substantial position leading up to the market close, followed by offsetting the position before the end of the close of trading for the purpose of attempting to manipulate the settlement prices. The case is still pending.

- On August 12, 2009, the CFTC entered into a consent order settling charges brought against a defunct hedge fund and a subsidiary for attempting to manipulate the price of natural gas futures contracts on the NYMEX on February 24 and April 26, 2006. The hedge fund was required to pay a $7.5 million civil monetary penalty.

- On January 22, 2010, the FERC Administrative Law Judge issued an Initial Decision in Docket No. IN07-26-004 and found that a hedge fund employee violated the Anti-Manipulation Rule, 18 C.F.R. § 1c.1 (2009) by selling large quantities of NYMEX natural gas contracts during the closing period on the expiration of the contracts with the intent to lower the settlement prices.

- On April 29, 2010, the CFTC issued an order settling charges that a hedge fund and subsidiaries attempted to manipulate the settlement prices of platinum and palladium futures contracts on the NYMEX. The CFTC found that since at least November 2007 through May 2008, a former portfolio manager of the hedge fund engaged in “banging the close” to exert upward pressure on settlement prices. The hedge fund was required to pay a $25 million civil monetary penalty and agree to certain undertakings, including recording, maintaining, and reviewing certain non-equity trade-related communications.

**Trade Practice**

- On January 28, 2010, the CFTC issued an order settling allegations that a global corporate and investment bank prearranged trades in natural gas futures contracts on NYMEX during November and December 2008. The trades were part of a strategy involving the purchase and sale of the same quantity of contracts by one customer and the opposite sale and purchase of the same quantity by the other customer. These prearranged trades negated market risk and price competition and constituted fictitious sales and
noncompetitive transactions. The firm was ordered to pay a $250,000 civil monetary penalty.

- On April 29, 2010, the CFTC issued an order settling allegations that a subsidiary of a global investment bank concealed from the NYMEX the existence of a large Trade at Settlement (TAS) block crude oil trade. The order found that a trader and a broker from another institution discussed an opportunity for the trader’s firm to act as a counterparty to a third-party customer of the broker to purchase a block of March 2009 crude oil futures contracts and to sell a block of similar quantity of April 2009 contracts on the NYMEX. The price of the two legs of the trade was to be determined later by the market closing price, a TAS block trade. The trader requested that the broker not report the TAS block trade until after the close of trading, and, thereby, they concealed the existence of the trade from NYMEX. The firm was ordered to pay a $14 million civil monetary penalty and comply with certain compliance-related undertakings.

- On May 3, 2010, the CFTC issued an order settling allegations that a diversified commodities trading company entered into prearranged trades that were wash and fictitious sales on several occasions during the period March 30, 2007 through July 30, 2007. In certain instances, the trading company prearranged the execution of these trades on NYMEX through a Futures Commission Merchant (FCM) and, in other instances, the trading company used an Exchange for Physical (EFP) transaction to transfer positions from one trader to another. The trading company was ordered to pay a $130,000 civil monetary penalty.

**Position Limit Monitoring**

- On February 24, 2010, the CFTC issued an order settling allegations that a global banking institution exceeded certain NYMEX natural gas, heating oil, and platinum futures contracts on more than one occasion from in or about December 2006 through in or about March 2006. The Order states that the institution exceeded the position limits set by NYMEX rule that sets limits on positions that may be held during the current delivery or "spot" month for futures contracts. The institution was ordered to pay a civil monetary penalty of $130,000. While the institution is not registered with the CFTC, it is listed as a member of NYMEX and subject to NYMEX rules and CFTC jurisdiction. According to the CFTC order, the institution violated Section 4a(e) of the Commodity Exchange Act when it exceeded the position limits on four contracts. The CFTC noted cooperation was a factor in settling the matter. Note: the CFTC is currently considering revising position limits on energy futures contracts in CFTC-regulated exchanges that trade four specific energy commodities - Henry Hub natural gas, light sweet crude oil prices, New York Harbor No. 2 heating oil, and New York Harbor gasoline blend stock.
Financial services, energy/commodity trading firms, and hedge funds are recognizing that there exists a set of trading behaviors that can and should be monitored rigorously to generate automated alerts highlighting potential questionable behaviors of interest. Regulators are clear that self-reporting and cooperation, along with demonstration of a culture of compliance and reasonable training programs, can be mitigating factors in investigations and settlements. Most importantly, though, firms are recognizing the importance to their reputation and wallet of “getting out in front” of these issues with clearly defined monitoring approaches.

**Which firms are leading these initiatives and why?**

History has shown that those exposed to a great risk are usually (but not always) the most likely to explore means to address that risk.

Not surprisingly, firms that have found themselves as subjects of regulatory investigation and/or have settled cases are increasing their attention on monitoring for specific trading behaviors. In several cases, affected companies agreed to establish and follow a Compliance Program wherein the settlement specifies that the focus of the compliance program should be on documentation, prevention, and detection.

However, the interest in enhancing surveillance capacity is by no means limited to firms whose activities have been questioned or penalized by regulators. It is noteworthy that large, multinational financial services firms with interests in a wide range of energy and commodity products and instruments are now demonstrating leadership in the surveillance realm. In some cases, financial services firms are leveraging their knowledge and investment in compliance-driven trade monitoring procedures and solutions that have been widely deployed in their Securities businesses for Cash Equities, Derivatives, Fixed Income, and FX asset classes – sometimes for years.

While a review of regulatory cases and settlement action makes clear that every energy or commodity trading firm is subject to these risks, a review also reveals that the larger energy and commodity trading entities may be more “exposed” to regulatory action – though there seems to be no demarcation point with regard to the types of product (e.g., physical vs. financial) that a large firm trades. Market participants with considerable size may maintain a greater ability to affect trade prices and such size also increases likelihood that an organization shows up on large trader reports. This spotlight is a compelling incentive for firms to advance their surveillance initiative.

Notwithstanding the above, the large pure-play energy and commodity trading firms themselves have a long history of proprietary trade surveillance reports and analyses often built in-house or by consulting firms. Historically, these solutions have been expensive propositions. However, even firms that have invested heavily in home-grown surveillance solutions are revisiting their approach in response to details of regulatory settlements across the market and asking for improvements.
How are trading surveillance requirements evolving for firms that trade energy and commodity products?

Trade monitoring in a rigorous manner has permeated the broader securities market for over a decade. Equities’ trading was the first to come under the microscope where securities trading firms implemented a common set of structured monitoring tools to look for market manipulation and price positioning, fair dealing with customers, false/misleading transactions, and insider trading/conflicts of interest.

Defined behaviors of interest emerged from regulatory examination, case law, and internal analysis – and many firms learned the value of communication between compliance personnel across books/desks to establish a generally similar approach to trade monitoring and alert management. This process was viewed as a change management initiative, with the process flows related to the data, used to monitor and regulate behaviors. The more granular the data, the better management of the related behaviors, and the more trades/actions can be transparent.

These approaches were soon applied to other asset classes with fixed income and listed derivative trade monitoring following a similar path to the equities process. While the core assets differed dramatically from cash equities, there was commonality in the trade monitoring approach. Behavior detection for activities such as front running, wash trading and parking, and off-market pricing proved applicable regardless of the asset class.

Today’s regulatory environment for traded energy products – especially gas, power, and oil – is clearly following the path established in the broader securities markets. As emerging case law provides insight and the regulatory bodies are further empowered, there is no question that the precedents set in the securities markets are now applicable in the energy trading markets. The topics discussed at recent energy trading compliance conferences validate this proposition.

What are the components of an effective Energy and Commodity trading surveillance solution?

Compliance approaches based on periodic reviews, sample-driven analyses, and/or paper-based compliance reporting systems are resource intensive and do not demonstrate a proactive approach to Energy and Commodity trading compliance. Furthermore, in an ever-changing regulatory environment, updating traditional compliance procedures can be costly and difficult to keep up-to-date. Automated monitoring/detection that intend to improve efficiency and enhance a firm’s risk profile will include the following components:

- **Real Time and Intraday Warnings** - early/first level compliance checks that can be done in the ETRM as part of the trade capture process can prevent or deter potential compliance breeches. With a fully integrated physical and financial ETRM and logistics solution capable of near real-time calculations and analysis, firms can readily monitor for
instances where a deal creates unacceptable risk or exceeds a specified position limit on a trader, desk or enterprise level.

- **Post Trade Behavior Detection Scenarios** - Detection of complex behaviors through post trade “scenarios” that apply sophisticated data mining tools and algorithms serves as the core of a trade surveillance solution. Organizations commonly deploy pre-built patterns for detecting unusual trades or patterns of unusual trading activity.

- **Comprehensive data store** – Experienced compliance personnel understand that a rich data set enables quality alerts and the efficient analysis of those alerts. A system that leverages a robust data model for compliance risk management is essential for identifying the complex behaviors. Collecting and storing data from the ETRM and other source systems that enable the compliance analyst to research the alert within the surveillance application generates the efficiencies that many compliance departments require.

- **Information-rich user interface (UI)** – Alerts generated by the system should be able to be reviewed in detail easily through the surveillance application. A “one-stop-shop” approach is an accepted norm across compliance departments in the broader securities markets. The UI must present the information contained in the data warehouse cleanly, as well as provide the user with effective means of taking action on alerts, recording communication related to the alert, attaching relevant documentation, routing alerts to other users, promoting multiple alerts to a case, and closing alerts are among the many key functionalities of the user interface.

- **Reporting, Analytics and Dashboards** – Reports and analytic capabilities, ranging from the simple to the complex, should complement that alerts generated by the behavior detection scenarios. Regulators routinely question compliance personnel on the selected settings for their monitoring efforts – an effective solution will provide compliance teams with the ability to at historic alerts to help firms hone in on the ideal settings and demonstrate quantitatively to regulators the rationale for the firm’s decisions.

- **Highly Configurable Scenarios** – Compliance is not a one-size-fits-all business. Pre-built scenarios must be easily configured with parameters that allow institutions to match their individual compliance philosophy, risk tolerance, and personnel resource availability with the appropriate level of monitoring and analysis.

- **Automated Alert Correlation** – Mechanisms to bring alerts from various compliance or risk management systems together enabling an enterprise view of compliance risk. An alert correlation engine that automatically searches across various system alerts to identify potential undiscovered relationships between entities involved in a trade is a must-have component of modern surveillance solutions.

- **Integrated Case Management** – Case Management workflow capabilities integrated with the alert workflow allow users to generate new cases on an ad hoc basis or promote
existing alerts to cases - enabling a more holistic and enterprise approach to compliance risk management.

- **Comprehensive Instrument Coverage**. As regulatory inspection extends to physical and financial products, the defined scenarios must target unique behaviors of interest for Physicals and Financial/Derivatives market.

![Figure 1: Major components of an effective Energy and Commodity trading surveillance solution](image)

**What other areas of the enterprise are affected by these compliance initiatives?**

Effective surveillance requires quality data. For example, the need for an accurate trade date and time becomes critical to a firm’s ability to determine possible instances of banging/hammering the close. In some cases, trade capture systems do not provide for recording of trade time. But even when a field exists to capture trade time, firms are learning that the process for entering trades is often inconsistent. Numerous anecdotes of processes where trades are entered in batches at various points during the day or even at the end in the day are commonplace. Forward thinking firms are currently considering the implications of such data inadequacies and
making changes to capture and record such data elements. In the interim, effective detection systems must be designed to accommodate the variations in trade and market data availability and quality.

Conclusion

Financial Services institutions, energy trading firms, and other traders of energy commodities (e.g., hedge funds) that trade products and/or commodities can no longer rely on an ad hoc approach to monitoring these trading businesses. The evolution of trade monitoring approaches set by compliance departments in the broader financial securities markets offers beneficial lessons from which Energy and Commodity Compliance and Risk Management professionals can establish their trade monitoring regimens. Ad-hoc and sample-driven analyses, conducted exclusively on report-driven frameworks, are now being supplanted by rigorous algorithm-driven, analytic solutions that offer comprehensive alert processing and management. Compliance analysts and management recognize that time is well spent on questioning and investigating alerts, not pre-processing data in Excel spreadsheets. While they continue to evolve, regulations in this space are here to stay and energy and commodities trading firms would do well to implement proven surveillance solutions that deliver quality alerts and supporting information which promotes efficiencies across the compliance team and reduces the firm’s regulatory and reputational risks.