

Energy Risk convened representatives from Ernst & Young, MRE Consulting, Sapient, The Structure Group and SunGard Consulting Services to discuss a number of topics on the outlook for 2010, including new regulation, future market developments, credit and liquidity issues

2010 EXPERT VIEWS

At the start of the new year, *Energy Risk* brings you the 2010 outlooks of five major consultancies and experts in the energy trading and risk management arena.

They each address some of the key questions that will be affecting the markets in 2010. Topics covered include: the future of over-the-counter regulation – some of the experts are concerned about it and some less so; a discussion of the incentives needed to develop the green markets; a look at whether energy companies have the necessary tools and management structure to react to future market developments; and a look at credit and liquidity issues.

As the experts address the same topics, the Q&A provides the reader with a variety of different opinions on each issue, bringing you up to date with the latest thinking on the most pertinent issues that will be affecting the market in the year ahead.



“Leading-practice companies differentiate themselves by providing the risk management function an equal seat at the table

How have advances in risk management and financial engineering made energy trading more dangerous? What lessons have been learned from the credit meltdown?

Talib Dhanji (TD): We do not believe energy trading is more dangerous today because of advances in financial engineering. The industry learned valuable lessons about risk management and financial engineering following Enron. As such, the appetite and risk tolerance for sophisticated products and techniques is fairly limited compared to financial services. Although energy trading companies were equipped to deal with the credit crisis, the credit crunch has affected most industries. The basic lesson learned is not to depend on statistical risk measures as a complete picture of a company's risks. Companies must consider 'what's the worst that can happen?', and literally try to smash their portfolios. This may require creativity and quantitative ability, but can be what protects a company.

Also, trading companies have shifted away from heavy reliance on credit rating agencies, instead utilising forward indicators for credit assessments. Some energy companies have changed prior views about unimaginable failure of financial institutions. They have refined their credit-ratings process for all market segments with an approach that looks beyond standard ratings, and have developed stronger internal ratings models consistent with management's risk appetite.

Are energy companies equipped with the necessary tools and management structure to react to future market developments?

TD: Generally, energy companies are equipped with tools necessary for responding to changes in market conditions. However, the degree of risk management authority and a co-ordinated communication and reporting process impact the effectiveness of their

response. Leading-practice companies differentiate themselves by providing the risk management function an equal seat at the table where it is given proper support by executive management. We believe management structure continues to pose challenges for effective risk management.

At many companies, the number of risk management functions has grown to seven or more risk functions, creating inefficiencies and a degree of fatigue on the business. The standard front-, middle- and back-office structure must align with the wider business strategy and exhibit co-ordinated efforts for communication across offices and reporting to management.

Are you concerned about potential over-regulation from the US stifling over-the-counter (OTC) markets?

TD: Yes, there is concern that increased regulation of energy products and markets will stifle OTC markets. One objective of pending regulation is to mitigate default risk inherent in OTC contracts. Given the limited availability of data and centralised reporting of derivatives positions in the OTC market, moving to a more regulated exchange may increase transparency from a risk management perspective and reduce counterparty risk. However, this increased structure and regulation may severely limit trading as companies struggle to meet collateral requirements in the current credit environment. Moreover, exchange products may not meet the unique needs of companies based on asset structure, hedging strategy and risk appetite.

Which government policies are the most effective in incentivising investment in greener energies?

TD: The most effective incentives for driving 'green' energy projects have three things in common; the programme is, first, simple to understand and explain, as a successful programme generally



Talib Dhanji

brings new developers, owners and investors to the market.

Second, stable and certain in terms of amount, length and eligibility of subsidy. This allows companies to make strategic investment decisions to establish operations and manage issues such as permits, environmental rules, etc.

Third, structured to provide incentives to close the gap between the levelised cost of electricity of generated 'green' power and 'brown' power. The programme should reduce the price differential responsibly and not create 'barriers to entry' for new participants.

Carbon trading – cap and trade or carbon tax? What lessons can the world learn from the EU's Emission Trading System (EU ETS)?

TD: Effective climate change policies emerge when the emitter bears a marginal cost of emissions and, therefore, tries to shift towards alternative low-carbon energy sources. Consumer spending patterns will change due to rising prices that reflect carbon prices.

The EU ETS has been in place since 2005 with mixed success. Some governments allocated excess rights to entities, diluting system effectiveness by virtually removing the cap. This impact was so significant in phase I that EU allowances had minimal value by phase end. This highlights the difficulty of operating such a market and the importance of accurate emissions inventories in advance of launching a programme.

The benefit of a carbon tax over a cap-and-trade system is price certainty; what is uncertain is the volume of emissions. The challenge in designing a carbon tax is predicting the relationship and determining the correct price of carbon to achieve the desired emissions reduction.

I appreciate the contributions of valued individuals within Ernst & Young: David Coulon, Johnny Molina and Chris Prevo.

Contact

Talib Dhanji, Partner, Energy Risk Advisory, Ernst & Young
T: +1 713 750 8441
E: Talib.Dhanji@ey.com
www.ey.com



Firms should evaluate worst cases and expected losses, rather than just 95-99% statistical confidence levels

How have the advances in risk management and financial engineering made the world of energy trading a more dangerous place?

Mike Burger (MB): True 'risk management' has not caused problems in the marketplace. Increased paper trading and leverage without proper risk governance have increased danger for some participants. Use of sophisticated risk tools and measures without proper governance is symbolic, rather than effective, and produces a false confidence that further increases risk.

Statistical measures of risk are used by some participants without an adequate understanding of their limitations. Boundaries and worst cases must be understood, since markets do not behave in the 'normally distributed' manner assumed by many risk models. Recent meltdowns, including the banking credit crisis, have proven that losses can significantly exceed expectations. Firms should evaluate worst cases and expected losses, rather than just 95-99% statistical confidence levels.

The evolution of a company over time requires a fairly complicated model, anticipating future business decisions in reaction to market developments. Are energy companies equipped with the necessary tools and management structure?

MB: Most energy firms have not consistently integrated risk funding requirements into their capital budgeting processes with other investment planning (for example, upstream development, plant construction and so on). As trading and transaction flows increase, it is important to project risk capitalisation needs, prioritise that business alongside other investment opportunities and measure its relative performance.

In addition, mid offices are often established without proper executive attention and responsibility. Most are understaffed and undermanaged.

Operational risk should be re-evaluated on monthly or quarterly intervals, a risk committee should be responsible for reviewing effectiveness of controls and management reports, and risk-adjusted performance should be used for assessing commercial contribution.

Flaws of value-at-risk (VAR) – are energy companies using proper risk analytics and conducting enough stress tests?

MB: VAR is a measure of risk usually based upon a historical sample of market changes or a hypothetical 95-99% confidence interval (often based on a 1.7-2.2 standard deviation market movement). Some analysts believe that the \$10 billion hedge fund Amaranth was destroyed by a 10 standard deviation move in the market (that is, a natural gas calendar spread). Many traders and practitioners understand this lesson – that markets experience movements significantly outside of 'normal' patterns. However, few have instituted adequate controls or better models.

This type of risk model can be reduced by using multiple models and conducting more thorough analysis of worst cases or expected losses. Stress-testing can play a role, if worst-case scenarios are well-defined and used for controls.

Energy companies are having problems gaining credit and finding collateral for clearing. Is there sufficient liquidity to hedge out unwanted risk?

Bjorn Hagelmann (BH): This depends on the choice between managing credit and market risk. Capital is required to support either choice. Clearing transactions on an exchange assumes the willingness to pay the premium of upgrading to a higher credit quality. This leaves one with limited counterparty diversification and accelerated cash requirements.

A well-managed portfolio actively



Mike Burger



Bjorn Hagelmann

uses a mix of cleared transactions and over-the-counter (OTC) products to achieve the shareholders' risk preference. This is particularly true for participants in the physical markets. In the end, we cannot blame the tool for its failures. It would be like blaming the hammer for a sore thumb.

Should companies cover potential exposure at the time of entering energy transactions? Or should they hedge on actual exposure calculations on a daily basis?

BH: Companies should understand the risk preferences of their stakeholders. They should monitor and manage the organisations' risk to those risk/reward preferences. Organisations should disclose the risk profile to the stakeholders, so they can vote with their money.

When the reaction to deception or risk ignorance is the regulation of risk preferences, we all lose the freedom to earn an appropriate risk reward. In the long term, we will all pay because available supply will decrease.

Are you concerned about the potential over-regulation coming from the US stifling OTC markets?

BH: No one wants to see deceptive practices continue. Energy markets today are subject to a whimsical supply/demand parity. Regulation must strike a delicate balance between transparency and the elimination of choices.

'All or nothing' choices will severely impact parity. The market will seek a new parity after choices are eliminated. Prices for goods will be higher. Our fragile economy cannot support any further cost of deception or risk ignorance. We have to be careful when impacting supply.

Contact

Mike Burger, Managing director
 E: mburger@mre-consulting.com
 T: +1 713 844 6405
 Bjorn Hagelmann,
 Chief operating officer
 E: bhagelmann@mre-consulting.com
 T: +1 713 844 6543
 www.mre-consulting.com

How have the advances in risk management and financial engineering made the world of energy trading a more dangerous place? What lessons have been learnt from the credit meltdown?

Tony West (TW): The recent credit meltdown has led to greater awareness of the importance of risk management in energy companies. While certain shortfalls in policy were revealed during this period, advances in financial engineering have made the pricing and measurement of more complex risk possible; making the energy market safer rather than more risky. In contrast to the years past, where risk management focus had been primarily on reporting and control, Sapient believes that companies can emerge from the credit crisis with a more active and complete view of risk management throughout their business.

The evolution of a company over time requires a fairly complicated model – are energy companies equipped with the necessary tools and management structure?

TW: Management structure and tools are essentially a function of the company portfolio, yet firms often aspire to a structure consistent with the industry at large, believing it to be best practice. Asset-backed trading businesses are a case in point; many are structured in a similar way, with the purpose of driving risks to those capable of managing them, though the result may in fact really only succeed in moving profit from one part of the business to another. While in most cases corporate risk is reduced by adding trading to the asset business, often the true risk and value of the assets are not accredited to the assets appropriately to match the high-level strategic objectives of the company.

Flaws of value-at-risk (VAR) – are energy companies capturing long-term transactions and conducting enough stress tests?

TW: Firms operate in markets with varying liquidity and with assets of varying characteristics. While VAR is a good overall metric, it can give a false sense of security in the portfolio. The main issue is the interpretation



Sapient believes companies can emerge from the credit crisis with a more active and complete view of risk management



Tony West

and use of the VAR numbers. VAR models are approximations, so using them with the expectation of precision is generally a mistake and misuse of the concept, particularly in physical markets. Most traders and risk managers realise extreme (tail) events happen more often than anticipated, therefore relying on confidence levels of >95% is questionable, especially as there are many implicit assumptions that fail in extreme moves. Scenario and stress analysis are therefore increasingly important in understanding and quantifying risk. However, stress tests often follow a set pattern, looking at past moves rather than anticipating market reactions or designed around unique position/strategy characteristics. Furthermore, they are seldom revised, except in the case of significant loss events, by which time their value is marginalised.

Are you concerned about the potential over-regulation coming from the US stifling over-the-counter (OTC) markets?

TW: It is clear that regulation in the OTC energy markets will increase. However, the drive to improve operational risk and understanding of credit risks will ultimately bring more market confidence, thereby re-establishing liquidity. Sapient's concern is that the energy market players will not respond proactively enough and therefore will risk leaving compliance standards to be imposed by the regulators, whose influences will largely have been provided by the financial institutions in a similar fashion to FAS 133, IAS 39 and other recent regulatory changes. This loss in creative influence in the regulatory process should be avoided. Physical players should invest in internal metrics and industry benchmarking that will give value in the short term while providing influence and direction to the regulators in the medium term.

Carbon trading – cap and trade or carbon tax? What lessons can the rest of the world learn from the EU's Emission Trading System (EU ETS)?

TW: Trading during the first EU ETS phase introduced important changes to the commodity landscape by establishing carbon emissions as a tradable commodity and increasing liquidity in coal markets. The carbon marketplace enabled energy companies to value carbon emissions; improving operational efficiencies and driving optimisation of emissions across their EU-wide portfolios. Unfortunately, the ETS scheme did not reduce carbon usage. This was the result of substantially over-allocated country caps, compounded by offsets in developing nations. In principle, the cap-and-trade model can curb emissions but the process will be slow as phases II and III work off the overhang of phase I. In contrast, a tax on carbon will encourage the right behaviour more quickly if the tax is seen to be deployed in encouraging greener technologies and innovation rather than just a method of passing the cost on to the consumer. To be effective, the tax will need to be actively revised to drive continued reduction and, consequently, Sapient believes a hybrid model is the optimal way forward. Initially implementing carbon taxes to get the emissions level down quickly and then implementing cap and trade; facilitating continued efficient emission reduction by gradually cutting the cap further, once an effective cap level is established.

Contact

Tony West
 Director, Business Consulting,
 Sapient
 T: +44 (0)20 7663 6207
 E: awest@sapient.com
 www.sapient.com

How have the advances in risk management and financial engineering made the world of energy trading a more dangerous place? What lessons have been learnt from the credit meltdown?

Baris Ertan (BE): More sophisticated trade instruments and risk management practices have lulled energy trading organisations into a false sense of security. Some have viewed these tools as silver bullets to eliminate or define with certainty the exposure to risk – where they are truly meant to counterbalance or guide informed decision-making. The meltdown provided several reminders of this point.

Agency ratings are an imperfect tool for assessing counterparty creditworthiness, but their use in legal documents leads to a very real impact on liquidity. Therefore, proactive companies prepare scenario analyses to evaluate how a rating change could impact margining requirements.

Furthermore, the banking industry problems serve as a stark reminder that letters of credit and other instruments obtained with the intent of reducing risk actually transfer it from the trading counterparty to providing financial institution. As a result, leading institutions set provider concentration limits and perform more thorough analysis of contingent risks.

The evolution of a company over time requires a fairly complicated model, anticipating future business decisions in reaction to market developments. Are energy companies equipped with the necessary tools and management structure?

BE: Volatility in energy markets leads to growth that often outpaces the evolution of an organisation's processes and technology. The ability to respond to these changes can provide organisations with tremendous short-term opportunities or risks. Organisationally, the increasing adoption of the chief risk officer position supports the appropriate strategic consideration of risk issues. While the business processes have begun to stabilise and vendor technologies have matured, every new market development has companies scrambling to redefine processes and deploy technology. Investing in 'future-proof' tools is



More sophisticated trade instruments and risk management practices have lulled energy trading organisations into a false sense of security



Baris Ertan

expensive and imperfect. Consider the following to manage the risks involved:

Leverage functionality in packaged software. Much of the time and effort required to address market developments is related to redeploying software or custom-developing new capabilities.

Invest in integration and reporting strategies and then follow them. There are still no complete end-to-end systems for all purposes. As a result, integration and reporting often become the weak link in the technology chain – limiting the ability to address real-time position, credit, management and regulatory reporting needs.

Promote better integration of business functions. New market developments coupled with increased business growth have led to a lack of understanding across groups of key commercial systems/capabilities within many organisations.

Should companies cover potential exposure at time of entering energy transactions? Or should they hedge on actual exposure calculations, which are changing on a daily basis?

BE: Current exposure changes dramatically as new deals begin delivering or as existing deals deliver intra-month. The fluctuations make it more difficult to maintain exposure within desired levels and may increase the frequency of margining activity. In a time of scarce liquidity, the more levelled view provided by potential exposure (that is, two invoice periods of delivered exposure plus mark-to-market) offers a more balanced view of collateral requirements. Potential exposure also supports more proactive management of credit risk by looking at what the exposure would be when financial stress can be most readily identified.

Are you concerned about the potential over-regulation coming from the US stifling over-the-counter markets?

BE: As Congress considers drafts of

legislation, they are wary of the 'law of unintended consequences'. One of the key concerns is how the cost of the proposed clearing and reporting requirements could negatively impact a company's ability to enter into derivatives that help mitigate risk. Additional refinement is needed to get the desired transparency and protection against excessive speculation, while still allowing hedgers to manage the risk to which they are exposed. Thankfully, this issue is being actively considered.

Carbon trading – cap and trade or carbon tax? What lessons can the rest of the world learn from the EU's Emission Trading System (EU ETS)?

BE: The cap and trade programmes for SO₂ and NO_x in the US shows that this type of programme can work. From 1995–2008, emissions declined 36% and 49%, respectively, according to the US Environmental Protection Agency.

The key lesson from the EU ETS is that the proper setting of emissions caps and allocation and pricing of allowances/permits/credits is crucial to achieving the objective of reducing carbon emissions. The shortcoming of phase I of the EU ETS has been attributed to setting emissions caps too high and flooding the market with low-cost or free credits – leading to a rise in emissions and consumer energy costs, along with windfall profits for many industry participants. To avoid those pitfalls, permits should be auctioned and caps should be set sufficiently low to promote the desired reduction in emissions.

Contact

Baris Ertan, ETRM Practice Lead,
The Structure Group
T: +1 713 927 1145
E: baris.ertan@thestructuregroup.com
www.thestructuregroup.com

“Companies must respond to continued financial engineering and renewed risk appetites with better risk management, financial management and technology”

How have advances in risk management and financial engineering made the world of energy trading a more dangerous place? What are some lessons learned from the credit meltdown?

Austin Morris (AM): Risk management and financial engineering advances do not make energy trading more dangerous. Energy companies remain responsible for quickly implementing advances in risk management, financial engineering and technology firmly rooted in strong risk management policies that support meaningful, timely risk assessments.

A meltdown of fundamental adherence to governance, compliance and oversight principles made trading a highly speculative activity. This meltdown was fed by greed and excessive incentives to take risks without considering the negative consequences. As the global credit meltdown pandemic ensued, trading became more dangerous, reflecting the lack of market liquidity and creditworthy counterparties.

Among the lessons from the credit meltdown:

- Companies must respond with better risk management, financial management and technology, rooted in strong policies and timely risk assessments.
- In the intimately linked global economy, a shock in any sector or a key country can reverberate rapidly through the world.
- Governments, regulators and political organisations are wrestling with challenges, including:
 - Developing mechanisms to anticipate and measure systemic risk.
 - Creating actionable policies to mitigate risk's harmful impacts.
 - Co-ordinating across geographic, political and regulatory boundaries to improve oversight and enforcement.
 - Sizing and structuring large financial and non-financial firms so they are

not deemed too large to fail and to avoid an asymmetric situation where losses are socialised and profits privatised.

- Regulatory oversight and enforcement tend to be cyclical and are now in a growth phase. A balance is needed that provides increased transparency without unduly paining traders.
- Incentive compensation programmes that balance risk-taking and risk mitigation to foster prudent decisions.

Flaws of value-at-risk (VAR) – are energy companies using proper risk analytics and conducting enough stress tests?

AM: Energy prices are not lognormally distributed. Companies should revamp risk assessment to reflect realistic market-price probability distributions. As trading horizons expand, VAR calculations should balance liquidity horizons with the ease of conducting transactions and widening bid-ask spreads.

While VAR is an important metric, companies should also compute other, VAR-like metrics including cashflow-at-risk, working-capital-at-risk, cash-balances-at-risk and capital adequacy.

Massive correlation matrices are unreliable and hard to examine. Refining matrices could make Monte Carlo-based VAR and other risk metrics available for trading-related decision-making.

Companies remain challenged to design actionable, as opposed to interesting and academic, stress tests. More attention to stress tests, VAR and other risk measures can yield better assessment of risk-reward trade-offs and the capital needed to assume them.

Should companies cover potential exposure at time of entering energy transactions?

AM: Hedging can be dynamic if



Austin Morris

transactions occur at liquid locations for liquid tenors (for example, Henry Hub six-months). For longer-term transactions at somewhat illiquid locations, reserves must be calculated. Companies should consider cash positions, working capital and reserve levels before executing a trade and its hedge.

Are you concerned about potential over-regulation stifling over-the-counter (OTC) markets?

AM: Trading scandals have occurred on regulated, organised exchanges. Regulations stifling OTC markets may adversely affect some participants. The effectiveness of regulations will determine their impact. A 'one OTC market at a time' approach and case-by-case assessment of consequences are needed.

Which government policies do you see as being the most effective in incentivising investment in greener energies?

AM: Positive incentives advance green technologies and behaviour better than penalties. Tax breaks and grants nurture strategic investments based on a technology's long-term viability, while not punishing existing providers. Achieving utility scale will help greener technologies more effectively compete with conventional energy sources.

Carbon trading – cap and trade or carbon tax? What lessons can the rest of the world learn from the EU's Emission Trading System (EU ETS)?

AM: This debate continues throughout the world. Cap-and-trade elements could be effective if implemented properly. However, as seen recently, a punitive approach to cap and trade becomes highly political and causes companies to diverge from sought-after behaviours.

Contact

Austin Morris
 Managing partner, Energy Solutions,
 SunGard Consulting Services
 T: +1 713 208 7905
 E: austin.morris@sungard.com
 www.sungard.com