Asia Pacific Energy Trading Revs Up!

The time is now for a rapid acceleration in energy trading and risk management throughout the region, say **PETER C. FUSARO** & **TOM JAMES**.

FOR MORE THAN a decade, we have worked with energy companies in Asia Pacific energy markets as advisers, brokers, traders and bankers. Our experience in this culturally rich and varied part of the world has led us to believe that the time is now for a rapid acceleration in energy trading and risk management throughout the region. While market developments have not followed the energy market evolution of New York and London (where Peter and Tom are respectively based), Asia is ripe for a fundamental change in its trading and risk profile.

The rise of China as the second largest oil consumer in the world and the entrance of energy hedge funds into the energy markets are catalysing energy trading throughout the world. Asia is now poised for substantial growth in energy trading. Much of this trading will be electronic. Evidence of this was the growth in IntercontinentalExchange (ICE) trading in Asia from 2% to 5% over the last year - which may seem insignificant but is actually a harbinger of energy trading in Asia. There will be no trading pits here, as confirmed by the Asian financial markets which have seen the biggest number of electronically traded forward markets set up in the world.

The Asia Pacific region is experiencing rapid economic growth fuelling increased needs for crude oil and refined products supply. This growth in demand is driving rapidly increasing supply chain complexity as new trading patterns develop. Growth in the region and in China specifically, is leading to the development of new supply markets in both the Middle East and Russia and in new infrastructure construction from point of supply to the refinery and beyond. Since most shipments are undertaken by water, the new infrastructure includes tankers, terminals, storage facilities, refineries and overland distribution systems.

While trading remains largely based on OTC contracts without a standard regional marker for price transparency, it is this supply chain complexity that will drive costs and risk in the medium-term, both in China and the region generally. The risks and costs will drive energy trading forward.

China is also entering the paper markets for oil trading in a big way. They are trading both the NYMEX and IPE and have accelerated their oil futures trading since the end of April 2004 since when oil futures trading has been allowed in China. Also, the Shanghai Futures Exchange announced on July 21st 2004 that it will host fuel oil futures trade by the end of August 2004, offering a hedging instrument for domestic players in China. While the contract will most likely fail since fuel oil is an illiquid market more conducive to swaps transactions, it more importantly indicates the direction of paper trading in China i.e. that it has finally arrived! China, which imports a third of the six million barrels of oil it consumes daily, needs the derivatives to cope with intensifying competition as it opens the closely guarded sector to foreign players such as the oil majors.

Why Now?

While energy trading and the use of energy risk management tools have been slow to evolve in Asian energy trading, that present state of affairs is beginning to change across the board in the energy complex. Driven by energy market deregulation, globalization and privatisation trends in many countries, risk is becoming pervasive. As many Asian countries move toward open



markets, competitive forces are coalescing, forcing much more active energy risk management. It can be argued that risk is endemic in market economies. Therefore, risk management techniques are increasingly becoming the necessary survival skills for Asian corporations. Active energy risk management then becomes a fiduciary responsibility of Asian energy companies. While short-term physical oil trading has always existed in most Asian countries, the energy complex is now broadening to include gas, power, petrochemical, coal and weather risk management. Lurking on the horizon is emissions trading to reduce plant emissions and reduce greenhouse gas emissions.

Asia is now primed to embrace the active use of energy derivatives and much more sophisticated trading techniques and financial engineering. Bor rowing heavily from the institutional memory of well developed New York and London capital markets, energy trading and risk management are on an upward trajectory in Asia fuelled by growing oil and gas dependencies and the need for more electric

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power. Credit risk management similarly is an area of exponential growth in the region as the need to actively manage counterparty risk is highlighted in the wake of the demise of Enron and other US and European trading companies. Deregulation of the electric power industry in particular brings these risks into focus. The transition in the market from monopoly to competitive markets has fundamentally changed how utilities and others buy and sell electricity. It is now the beginning of the transition to competitive markets and trading in Asia Pacific.

Oil Trading

Crude oil and petroleum products are traded globally 24 hours per day every business day in both the physical and paper markets. With the daily physical consumption of oil almost 80 million barrels and annual trade valued at over US\$1 trillion, the growth in paper energy trading seems assured with new financial products evolving to meet the needs of producers, refiners, marketers and consumers. Paper trading for oil has grown on established futures exchanges to over 500 million barrels per day with much greater growth on the OTC markets as some structures are out 10 to 15 years forward. Moreover, because major oil companies must now buy and trade on the spot markets to meet more of their supply needs that were previously met by their own production, their active involvement in paper trading has increased over time. These changes, coupled with periods of supply tightness and higher prices since late 1998 have lead to greater oil price volatility, and show that energy price risk management must be increasingly managed by a wide variety of existing and emerging financial instruments for the longer-term.

Because risk management tools are now more widely accepted and available as a means to reduce financial risk in the commoditiesmarkets, their application in the oil markets has accelerated over the past 20 years. Risk management tools provide a degree of certainty for oil producers, refiners, airlines, shipping companies and manufacturers who use them. Both oil futures and off exchange OTC instruments allowprice risk management. As the energy industry continues to reintegrate vertically once again with new supply arrangements between producing and consuming countries, the uses of financial instruments of the off exchange markets and regulated exchanges provide both financial price risk management and the access for the tremendous capital needs of the industry. Conservatively estimated at US\$2-3 trillion notionally for all price deals, the OTC energy swaps and options markets are dwarfed by the US\$120 trillion global interest rate and currency swaps markets.

In fact, banks should be the clear beneficiaries of the Enron disaster since they have stronger balance sheets than many energy companies. And hedge funds have now entered the fray to provide liquidity as well.

The OTC oil markets exist in Asia primarily because financial futures for energy have failed on the Singapore Exchange (formerly SIMEX) and are quite illiquid on the Tokyo Commodities Exchange (TOCOM). Customised OTC financial instruments can be developed more rapidly to meet changing market conditions. However, both markets count on the financial performance of its participants to honour their commitments.

Jet Fuel Swaps: Always a Risky Business

According to an International Air Transport Association (IATA) report presented in early 2003, every additional cent per gallon that is added to the price of jet fuel costs the airlines an additional US\$600 million per year. Anything effecting operating costs in such a way is a key concern. This, combined with the unpredictability of jet fuel costs, has made airlines active users of both futures and price swaps as ways to fix jet fuel costs. Jet fuel swaps can be specifically tailored to quantities, dates and fuel type even though no futures markets exist for that fuel. In this way, airlines are able to determine their operating costs based on more predictable, fixed jet fuel costs. The market has become so active that swaps brokers have appeared in Europe, Asia and the US to offer their services. Moreover, jet fuel costs are a large and volatile component of an airline's operating costs and can vary from 15 to 30% of operating costs depending on jet fuel prices. This incentive to contain jet fuel price escalation was an additional impetus for the airlines industry to use financial instruments.

Jet fuel buyers prefer not to pay upfront premia and use less expensive short-term strategies although swaps prices have continued to drop and become more competitive as the market has matured. Swaps can, however, also be used for seasonal periods of heavy fuel usage, such as for three to six months during the summer peak demand periods.

Some banks – acting as middlemen – have been able to manage not only fuel price risks but also interest rate and currency swings by bundling these into a jet swaps package. Because of the multinational nature of the airline industry, overseas currency fluctuations impact directly on the bottom line and can add to operating risks. Some airlines have been particularly clever in realising that their perpetual debt financing needs for new equipment make them active in many multinational markets. Therefore, these airlines are active in different capital markets in order to attract capital at the most favourable terms to meet financing needs. High interest rate costs are a key component of airline expenses. Currency options are used to hedge against aircraft purchases, and financing transactions use floated or fixed debt obligations that can be converted in swaps agreements. Because it is important to protect profit margins when purchasing equipment in foreign currencies, options and swaps can be built into these transactions in order to lower the price of purchasing aircraft.

Most airline carriers use either oil companies, oil traders or commercial banks, primarily because they are "massively short jet fuel" as described by one swaps trader. Asian carriers have been active in hedging their price risk for many years.

Shipping Industry: Still Slow to Change

The shipping industry has a need similar to the airline industry which is to fix their fuel costs. Fuel price swaps and options are used to fix bunker and diesel fuel costs for shipping transportation up to two years or more as well as to fix freight rates for tanker charterers. Typically, about 30 to 40% of a shipowner's costs are fuel related, and therefore, control of bunker fuel costs is a crucial part of the business.

Because of the difficulty in hedging fuel costs on the futures markets - by using the mostly illiquid fuel oil futures contracts when available which trade in extremely thin markets - most shipping companies do not use fuel oil futures to control their bunker costs. Some use crude oil futures to manage their risk. Some develop a bunker fuel hedge with market makers who use crude oil to base the hedge. The shipping industry has been slow to adapt to using risk management tools for hedging their bunker requirements or hedging freight rates. Although they will build tankers 'on spec', shipowners are still reluctant to hedge their price risk. And when shipping is in a bull market like today, it is hard for participants to see the down-cycle of markets.

LNG Trading

LNG is clearly going to be a large factor in the world's future energy equation as the US enters the market affecting both Atlantic and Basin LNG trade. The natural gas business is set to undergo revolutionary changes with the US set to become a hub in the global gas trading market. With each month that passes, it is clear that the US is joining the rest of the world in embracing LNG as a global commodity that can provide substantial assistance in meeting the growing demand for natural gas, and thereby maximising the use of this relatively clean-burning fuel to minimise adverse environmental consequences as compared to other fossil fuels.

The US is in the first stages of a rapid increase in the importation of LNG. The market driver is that the US is now the world's high cost gas centre. But Asia has been the leader in LNG imports for over two decades with North east Asian importers including Japan, South Korea, Taiwan with China ready to enter the imported LNG market.

North east Asia represents today's true LNG market with Japan, South Korea and Taiwan taking the lion's share of

global LNG supplies. Down the road, China's voracious energy appetite looms large as it constructs its first of many LNG terminals. Because of these market dynamics, it is highly likely that a North east Asia trading hub will occur with LNG supplies from the Middle East, South east Asia, the Northwest Shelf of Australia and Sakhalin Island bringing much of the supply to the region. The key element that is currently missing from this equation is price discovery. Changes are already taking place on how LNG is priced with the Japanese Crude Cocktail (JCC) being challenged by Brent and Henry Hub pricing. More price discovery will create greater liquidity in this emerging market which is only tanker constrained at present. With over 90 new LNG carriers being built, that dimension of world LNG trade is also coming into place.

LNG trading and hedging is following the development of a global market similar to the track that oil trading followed over 20 years ago. Growing spot trading in LNG since 1999 and the development of global gas markets have brought forth the opportunity for LNG hedging. The development

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the LNG spot market has been stimulated by the expiration of some 20 year supply contracts, new market entrants on the producing side, availability of LNG tankers, and LNG capacity creep (excess capacity over nameplate). Since those initial market developments trading houses and market makers are setting up structuring desks to hedge LNG cargoes. Basically, this involves using oil OTC contracts as surrogates for the natural gas, and either deconstructing the crude cocktail on which east Asian LNG prices are based or using the NYMEX Henry Hub natural gas delivery point as a price marker. In effect, the optionality of the contracts is extracted.

East Asia still takes 75% of LNG supply, the hedging of LNG cargoes is giving suppliers and end-users flexibility and greater efficiency in a very capital intensive industry. It is also another application of innovative financial engineering in commoditizing a new market.

Electronic Trading

The new age of electronic trading is set to be the battle of NYMEX and ICE with Asian oil markets as a primary battleground. The Asian Internet energy markets have evolved more slowly but that is beginning to change. The Singapore Exchange will now only launch electronic energy contracts in the future as its oil futures contracts for Brent mutual offset and fuel oil have fallen by the wayside. Platts Global Page 190 trades oil electronically, it seems by default and perhaps due to a lack of trade interest.

There is an interesting play in open spec naphtha (e-OSN.com) in the east Asian markets that will probably work since it has had an active and liquid forward OTC market for over a decade. E-Osn.com acts as broker to all market participants. The site is a niche market play but it does, however, demonstrate the potential viability of niche market segments for energy trading on the Web. The TOCOM energy contracts for gasoline is gaining some liquidity but the contract volume in kilolitres is quite small. However, TOCOM has agreements with NYMEX and should ramp up as the Japanese acquire a greater risk appetite.

Both China and India will undergo rapid growth as the Internet is currently used by a small fraction of their populations. India has the world's largest electronic exchange (for equity trading). Both countries may embrace Internet energy trading in a big way by leap-frogging technology. South Ko rea trades the most derivatives and is 98% wired. Asian energy trading will embra ce the Internet in every country as the barriers to entry are not technology but human behaviour. The energy industry is the nexus for the application of the Internet for not only energy trading, but procurement and etailing. A global business packed with information would seem to be the place to catalyse Internet applications.

What's Up Ahead

Weather, emissions and renewable energy markets will follow the more traditional oil, gas and power sectors in trading and risk management arbitrage in Asia. As trading liquidity grows in the global marketplace, Internet-based trading platforms will absorb much of this trading liquidity and enhance its growth. Asia is primed to be the next emerging market for energy trading. Today, we are seeing the beginning of convergence to the multi-commodity market founded on over two decades of oil trading and risk management development. The extension of energy commodity trading expertise for natural gas began in North American markets in 1990 and in Europe since the late 1990s. The beginning of physical and financial markets for electric power in North America, Europe and Australia surfaced in the mid 1990s. An active emissions trading market began in 1995 in North America. Now Asia is set to enter centre stage due to its voracious energy appetite. These markets are in various states of emergence and maturity.

The unprecedented price volatility in oil, gas and electric power markets experienced since late 1998 are accelerating industry adoption of both financial instruments and Internet energy trading. Commoditization has been accelerating into many new markets through the innovative efforts of companies who act as market makers and absorb risk, and the entrance of energy hedge funds adding liquidity and volatility to markets. The good news is that commodity markets need more players to develop fungible financial products and provide liquidity. The world's financial institutions and major oil companies are up to the challenge

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