



THE HUMAN ELEMENT

in Electronic Trading

BY PETER C. FUSARO

There's nothing wrong with the technology, and despite current liquidity problems the market is viable. But energy trading is still a personal game, and you can't play golf with a computer.

FOR QUITE SOME TIME, people have known that market liberalization and the transition to competitive wholesale electricity markets require new trading expertise, systems, and exchanges. With a liquid market—one that has many trades, choices, and dollars—electronic trading can provide risk management tools—and that furthers commoditization, keeps the market liquid, changes the role of traders and brokers, and creates more arbitrage opportunities globally for energy traders. Electronic trading can create greater price discovery, which is critical for structured financial products that need deal flow and data. It is also a driver for over-the-counter (OTC) market liquidity rather than futures trading. (We may even see electronic exchanges begin to bundle and sell their data just as brokers have done.)

One of the problems electronic trading systems have faced was that they depended on costly, dedicated private networks and computer hardware,

which added overhead and made them less competitive against conventional telephone trading. Now it is possible to harness the internet for business applications and offer global business-to-business e-commerce solutions for traders at lower cost. In addition, making electronic trades can streamline the trading processes by eliminating the need for paper contracts.

Market liberalization, which helps make the business-as-usual model obsolete, also forces a commercial environment that prompts new technological solutions. As a result, new competitors such as Oracle, Microsoft, AT&T, British Telecommunications, and IBM have made and will continue to make inroads in the energy industry for many years to come.

So, electronic commerce *is* transforming energy markets. But at the same time softening in those markets and the Enron impact have brought major repercussions to the electronic

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Energy Secretary Spencer Abraham (right) visits the International Petroleum Exchange. Will trading floors like this remain?

energy trading complex. The number of trades has fallen off dramatically, and lack of liquidity has become one of the market's largest problems.

But the meltdown has compounded a more basic problem. In the end, the adoption of electronic energy trading is really not a technology issue nor a problem of illiquid markets. Its difficulty lies in human resistance to change. Because of the strong element of human relationships in energy trading, the energy e-commerce space will evolve at a much slower pace than imagined even earlier this year. That's because the relationships between traders and brokers add value—from those relationships, traders get market intelligence and the ability to trade large-size lots without necessarily moving the market. Screen trading (at least in its current configuration) cannot accomplish this feat. Nor can screens play golf, go to sporting events, or take clients on junkets. Electronic trading platforms need to overcome the obstacle of human interaction, and quell people's fear of change.

Since the beginning of 1999, more than 50 new platforms have been either launched or proposed, while others have consolidated or disappeared. This past year, too, has seen the launch and development of many new energy trading platforms. Evaluating their ultimate success or failure is still premature, and it will be interesting to see which exchanges survive over the next year in the wake of the continuing problems in the North American gas and electric markets.

Not Right Now

Enron, some might say, mucked up deregulation for everyone. The historic bankruptcy and the financial distress of energy merchants across the globe have engendered a significant liquidity crunch, most notably in power derivatives markets, but also in North Ameri-



can gas markets. With credit concerns rife in the energy trading world, it is little surprise, given their bilateral nature, that EnronOnline and Dynegy-Direct fell by the wayside. Energy merchants are desperately trying to diversify their risks, so excessive bilateral trading with any specific counterparty is not a desired strategy. With credit ratings of energy merchants having tumbled of late, they can ill afford to be the subject of any more bad news.

Energy merchants also have come under increasing supervision following accusations that many were involved in gaming the market and exacerbating the California energy crisis. In the current climate, excessive speculation is likely to be viewed as market manipulation. The threat of regulation of the OTC markets has further damaged liquidity (and may even lead these markets offshore). This crisis could result in traders using hedging instruments to balance supply risk.

Massive power price volatility has hammered liquidity in electricity futures markets. No company can manage 200-300 percent annualized price volatility of power. Although this volatility can generate hedging interest and market liquidity, counterparties have to take the opposing side of the trade. Right now, few if any energy merchants have strong enough balance sheets to embark on such speculative trades, even if the desire were present.

So when will electronic trading transform the energy market? While exchange clients are not technophobes, it will take time for them to gravitate to new trading solutions based on their ease of access, cost, and reliability of the emerging system platforms. Energy brokers are trying to forestall the implementation of electronic trading by pooling trading data, which is a good business idea for them. Due to the present financial debacle, broker-assisted networks are falling by



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Internet Platform Consolidation Underway

Pit-traded futures contracts may be under siege globally by the rapid rise of screen trading, but energy markets in the United States will ultimately prove to be the last bastion of open outcry trading. The demise of both Enron-Online and DynegyDirect and the OTC liquidity crisis will further ensure this. Still, existing futures exchanges are trying to move to electronic trading without disrupting or cannibalizing the existing face-to-face market of open outcry: They are trying to offer electronic trading during after-hours trading. While this was formerly seen as a stopgap measure, the reality is that moving to an electronic trading format is a difficult proposition for futures exchanges. Traders have been lukewarm to these initiatives because they already have a successful and lucrative model based on human relationships—why bother to change it?

Exchanges now offer safe harbor in the continuing storm over nonregulated energy derivatives. Energy futures exchanges are regulated by

government agencies and have clearinghouses that are performing. The doubling of New York Mercantile Exchange's (NYMEX's) natural gas futures daily trading volume and open interest over the past year is indicative of a migration from the OTC markets, not a growth of overall trading volumes based on new market participants. The electricity derivatives market in the United States has already moved into a next-hour and next-day market using independent system operator (ISO) indexes as price discovery mechanisms—a function for ISOs that no one ever thought of before.

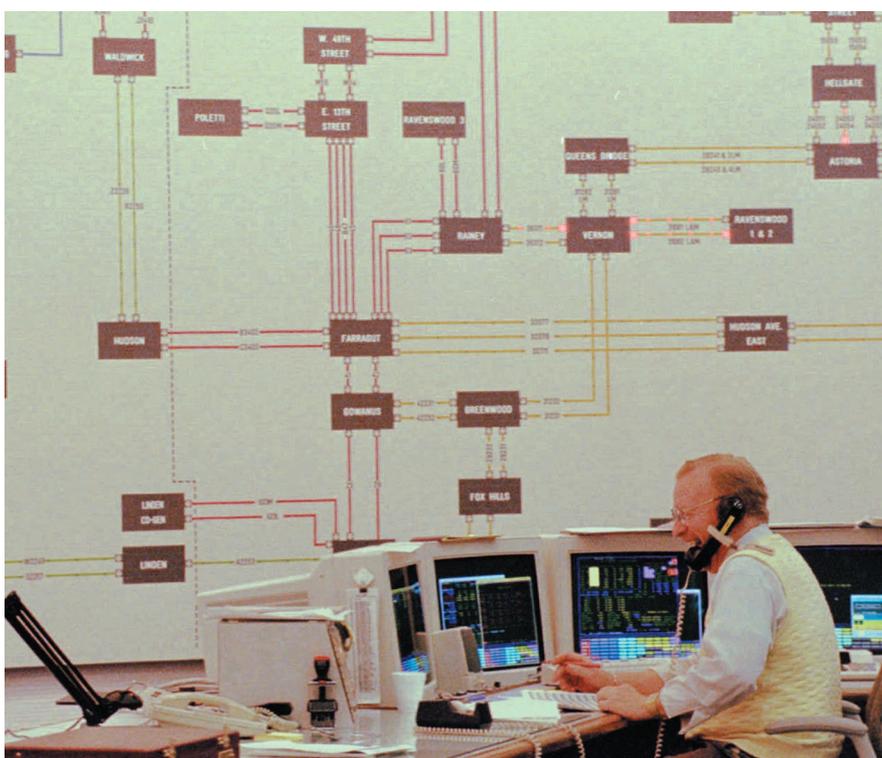
NYMEX's foray into electronic trading, eNYMEX, was an internet-based platform that seemed destined for failure—and it was. While NYMEX has had an after-hours energy futures trading system for the past eight years called ACCESS, exchange members did not want to risk cannibalizing their existing trading floor business and its highly liquid and successful oil and natural gas futures contracts. Other listless trading platforms have fallen by

the wayside and now are perhaps a decade away from success. System openness will cause these alliances and their closed systems to dissipate over time, but it is interesting to note that in the past two years, the electronic energy exchanges (Intercontinental Exchange, Bloomberg's Power Match, Red Meteor, and Altra) have turned to brokers to get liquidity on their platforms. The human touch is still essential even in the age of the internet.

The result is that the timetable for internet domination of energy trading is still five to ten years away. The important points are that the process is underway eight years after the first electronic platforms were introduced, and that these platforms will coexist with exchange floors and brokers for some time to come.

The floor of an independent system operator (like this one in New York) can also serve as a place for price discovery.

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the wayside, most notably HoustonStreet and RedMeteor.com. Each failed to gain sufficient liquidity. HoustonStreet moved from an electricity trading platform to an oil trading platform, while Redmeteor.com changed its

business model several times and is now an illiquid Russian oil trading platform. Go figure! (See Table 1.)

Despite the problems with these platforms, one clear market leader has emerged, the Intercontinental Ex-

change (ICE). Backed by major energy companies, ICE launched all its energy verticals in October 2000. These verticals include crude oil, petroleum products, natural gas, and electricity. ICE backers include (as of last September) BP/Amoco, Shell, Deutsche Bank AG, Duke, Morgan Stanley, Mirant, Goldman Sachs, TotalfinaElf SA, American Electric Power, SG Investment Banking, and El Paso Energy. The only missing piece of the puzzle is the participation of the major European gas and electric utilities such as Electricité de France, Germany's RWE, Italy's ENEL and ENI, and Spain's Endesa.

The Rest of the World

For now, European internet platforms are just as poorly defined as their U.S. counterparts. The desire for separate power exchanges for almost every country in the European Union and some in the Eastern Bloc does not demonstrate a willingness to move away from nationalism and toward borderless markets. There's the Amsterdam Power Exchange, the (German) European Power Exchange, the Polish Power Exchange, the Austrian Power Exchange, and the UKPX and Automated Power Exchange in the United Kingdom. The only truly successful platform has been Nord Pool in Scandinavia—it owes its success to hydro-power/nuclear power markets in Norway, Sweden, and Finland. Still, by 2005 Europe should have a highly efficient, electronically traded, convergent energy market.

ICE's purchase of the International Petroleum Exchange (IPE) appears to be a coup d'état and will allow the commingling of energy futures and OTC energy derivatives. The silver lining to this deal may be the crisis in OTC markets. In effect, ICE has consolidated its position as the dominant OTC exchange and should leverage that momentum into energy futures trading in Europe and beyond. The IPE trades the highly liquid Brent crude oil contract as well as gas, oil, and natural gas futures contracts. Ironically, NYMEX

TABLE 1

Exchange	Commodity	Market
Alberta Watt Exchange (www.watt-ex.com)	power	Canada
Amsterdam Power Exchange (www.apx.nl)	power	Netherlands
Altra	gas	
Automated Power Exchange (www.apx.com)	power	Scandinavia, UK, US
Bloomberg Powermatch (www.bloomberg.com)	gas, power	Germany, Netherlands, US
California Power Exchange	power	US
DynegyDirect (www.dynegydirect.com)	coal, emissions, gas, power	US, UK
E-LecTrade (www.e-lectrade.com)	power	US
Enmo (www.enmo.co.uk)	gas	UK
EnronOnline	coal, gas, power	US
e-OSN (www.e-osn.com)	naphtha	Asia
European Energy Exchange (www.eex.com)	power	Germany
Fuelxs.com (www.fuelxs.com)	coal, gas, petroleum	India
GFINet (www.gfinet.com)	coal, gas, power	Europe, US
Global Coal (www.globalcoal.com)	coal	Europe
HoustonStreet Exchange (www.houstonstreet.com)	oil, petroleum	US
Intercontinental Exchange (www.intcx.com)	coal, gas, oil, power, petroleum	International
Japan Oil Exchange (www.j-oilexchange.com)	petroleum	Asia
Leipzig Power Exchange	power	Germany
Natural Gas Exchange (www.ngx.com)	gas	Canada
Nordic Power Exchange (www.nordpool.no)	power	Scandinavia
Nymex (www.nymexaccess.com)	gas, oil, petroleum	US
Polish Power Exchange (www.polpx.pl)	power	Poland
Powernext (www.powernext.fr)	power	France
RedMeteor.com	oil, petroleum	US
TradeSpark (www.tradespark.com)	gas, power	US
True Quote	gas, power	US
UBSWenergy (www.ubswenergy.com)	gas, power	US
UK Power Exchange (www.ukpx.com)	power	UK

■ active ■ suspended ■ closed



launched its own Brent crude oil contract, but it was doomed for failure since a vibrant OTC and futures market has been firmly established since the early 1980s. However, there are plans to relaunch the Brent contract on NYMEX when the IPE Brent contract moves to ICE. This may also delay the decision to shut down the IPE trading floor, which was scheduled to occur next year. ICE may want to reconsider its options, as NYMEX traders would create a London presence in a heartbeat.

Several exchanges have recently developed in Asia, although Asians remain slow to embrace electronic energy trading. ICE is a key player here; however, the PlattsDirect system may challenge their position in the oil and products arena. Other players in Asia have tended to target niche markets, with e-OSN achieving notable success in the naphtha market. Numerous platforms have begun operations in India; however, these markets are in their early stages and rely heavily on plans for energy market liberalization and the unleashing of competitive pressures in the wider energy industry. An internet Japanese oil exchange is now under active consideration by the Japanese government.

The North American Trading Train Wreck

The past year and a half have been turbulent in the world of North American electronic energy trading. A pattern of

normal market development, whereby market maturity breeds consolidated market depth, has been replaced by turmoil. Everyone knew that the demise of Enron was going to have a negative impact on market liquidity, but counterparty credit risk concerns now reach far wider. The consistent downgrading of energy companies by leading credit rating agencies has exacerbated the credit crunch. Atypical of market crises, calls for regulatory reform abound. And the massive capital needs of company debt being disclosed do not paint a pretty picture. Negative energy trading headlines have forced energy merchants to keep their heads down and scale back operations as they shore up their balance sheets and prepare to weather the storm.

Despite the fact that pit trading has remained popular on NYMEX, electronic energy trading has achieved growth in North America over the past year. Trading appears to have switched to established exchanges, with NYMEX, ICE, and TradeSpark being the principal beneficiaries, although energy exchanges are desperate to prove to traders that NYMEX does not represent the sole safe house for energy trading in North America. Many exchanges have begun offering OTC clearing services in an attempt to calm traders' fears, with NYMEX and ICE leading the way in adapting their business models. NYMEX began to offer cleared Henry Hub

An abrupt switch to electronic trading would sound the bell on open outcry—and give Brent contract traders something to scream about.

swaps late last year, and ICE has recently offered clearing for crude oil and Henry Hub swaps. Although the offering of cleared OTC services is a step in the right direction, it remains to be seen whether it will be sufficient to stabilize confidence if rumors regarding the financial stability of other major energy players (specifically the merchant energy companies) continue to inflame or even turn out to be true.

NYMEX remains the largest energy exchange in North America. Its refusal to open up fully to electronic trading may cost it dearly in the long-run if liquidity returns to the market. But not now. Although NYMEX has long offered electronic trading via its ACCESS platform and plans to offer small “e-mini” futures contracts of its popular WTI and Henry Hub contracts, it is likely to experience considerable objection if it ever planned to move these conventional contracts onto an exclusive electronic trading platform. These “cash-cow” contracts remain the core of NYMEX's business, and the attitude appears to be “if they ain't broke, don't fix 'em.”

However, with ICE continuing to be successful, the threat to NYMEX contracts may be real. ICE has recently licensed e-Speed's futures trading technology as it attempts to add futures business to its already burgeoning OTC business. It appears that the crude oil and products business will be a direct fight between NYMEX and ICE in North America, with the gas and power markets offering alternative opportunities for competing exchanges to establish and maintain a foothold.

Other North American electronic energy-trading platforms have experienced difficulties over the past 12 months. Altra, once one of the pioneers in the field, ceased to exist as an exchange in 2002 and sold its software and natural gas liquids trading business to Caminus and ChemConnect,

FINISHING THE TRADE

By Gary M. Vasey

Since the deregulation of the natural gas and wholesale power industry, several fundamental shifts have occurred in the energy commodities business. Each acted as a dislocation event for the software industry, where changing market requirements interrupted the typical technology adoption curve.

It's in this unstable world that many energy trading, risk, and transaction management vendors and products (which handle contract management and other "back-office" functions, as opposed to open market exchanges) were born and, in many instances, died. Since many vendors were poorly capitalized, they could not build the new functionality that the shifted market required. Better capitalized vendors often made the transition, introducing new or enhanced products and sometimes taking the opportunity to buy out their competitors.

Before wholesale power deregulation, a thriving group of mostly small software vendors was busy establishing gas marketing software packages. Wholesale power required other systems to capture, schedule, and invoice. In response, some vendors built new software while others continued to focus on gas. A sudden realization of the need for risk management created yet another dislocating market requirement. Gas marketers had experienced little of the price volatility that came with electric power. Once again new vendors entered the market—start-ups as well as vendors from the financial markets that already had risk management systems.

A Package Market?

But for a vendor to design truly packaged software, there can't be too many business models. And that's a big problem.

Users' requirements vary dramatically based on assets, their operation, and their regulation. A package that is an 80-percent fit in one part of North America barely meets 50 percent in another part.

The result is that products become more complicated as vendors sell to an ever-larger installed base—and programmers produce nearly unsupportable spaghetti code that doesn't fully meet anybody's requirements. A poorly capitalized vendor magnifies the problem. Add a major industry shift, and you throw things even further awry.

The fact is that energy trading is not a shrink-wrap package market at all. It's actually a large number of small niche markets based on geography, assets, and regulatory regime. In fact, what the industry really needs are custom solutions delivered for the cost of a package!

Financial versus Physical

The industry has yet again shifted from a more speculative trading model to an asset-centric trading model: We are in mid-dislocation event. In an asset-centric world, software support to optimize assets and assess the volume risks associated with them have become important requirements. Some vendors with a financial markets pedigree can provide tools to manage price risk and perform value-at-risk and market-to-market position reporting, but they have weaker tools to help their clients understand the volume risk. Customers can turn to vendors

from a more physical energy side of the business, but they might not have the financial tools.

Similarly, the desire to understand counterparty relationships and get a better view of credit exposure has allowed new vendor entries.

Many packages are still weak in the area of truly flexible reporting that allows users not only to run a report, but also to drill down to the details. Instead, most come with a monumental library of canned reports (requiring users to spend consulting dollars to customize them) and rudimentary report writers that may require hiring database experts.

Best of Breed

In the early days, vendors aspired to a do-everything application. Most now aspire to offer "best of breed" components, or the best component for a particular function. This development is not surprising given the number of vendors focused on niche markets and the inability to meet everyone's requirements with a single solution.

The move to a best-of-breed model introduces additional complexities. It provides users with different components for different aspects of their business (such as deal capture, risk management, back office, and so on); or a transaction solution for each commodity, integrating the solutions with a risk management system. But integration can be complex and costly—plus, it's the dominion of the "system integrator." Of course, some vendors have built their applications in a modular fashion around their own middleware that still gives buyers the option to select a component from another vendor.

Also, several aspects of this business can be standardized—deal capture and risk management, for example. The more vanilla an area is, the easier it is for the vendors to bundle it and sell a true package. Other areas are more likely to stay a flavor of the regional operational and regulatory regime—scheduling, for example, where the needs of the transmission operator dictate much of the requirement.

Even with standardization and the emergence of shrink-wrap packages, the market will allow for many different vendors. That's because a range of solutions are available for different company sizes and budgets.

It's not about who has the best product today, whose products will integrate easiest with the key middleware, who has the best technology platform, or even who has the largest installed base. The future will more likely be like the past, where events in the industry change the fundamental rules of the game. It will be about which vendor is more flexible, innovative, and responsive to change and has the best attitude towards customers. Moreover, size and brand equity are no guarantee of future survival, either.

Whatever happens, the medium-term future is likely to be best of breed from multiple suppliers—making it more difficult for the user.

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respectively. Several exchanges have tried to change their business models as volume dried up considerably. Red Meteor also struggled to maintain volume and has now focused attention on becoming a provider of exchange technology and software services. Houston Street has scaled back operations immensely in light of declining volume. EnronOnline itself has reformed under a different guise following its acquisition by UBS, albeit in a much slimmed-down capacity—and UBS has proceeded to slim it down even further. New ventures entering this once dynamic marketplace are now rare, with the entry of E-LecTrade into the structured power trading market representing the sole noteworthy addition in recent times. And it's now up for sale, as well.

Dubious trading practices have severely damaged liquidity in the electronic energy trading marketplace. The pattern of wash trading—buying and selling at the same market price with the same counterparty—creates the illusion of enhanced volume and liquidity in the market, boosting trader confidence in the strength of witnessed market price levels. (In technical trading, prices supported by increasing volume are often seen as a sign of price strength and sustainability.) These trades seem particularly (and ominously) suited to online energy trading exchanges. With low transaction costs (even zero transaction costs on EnronOnline and DynegyDirect), embarking on these phantom trades would have no direct measurable cost or benefit except for the trader's bonuses.

The pattern of market gaming that seemed to spread across the energy trading community last year has led to widespread calls to subject loosely regulated OTC markets to the same regulatory standards as NYMEX and

other futures exchanges. Online exchanges are understandably concerned that restrictive regulation will suffocate an industry in which all but the strongest of exchanges are already gasping for breath.

The Future of Electronic Trading

We are now in a transition period. The emerging internet energy market is going to have to come to grips with the human factors part of the equation.



Two California State Senators focus on a report about market gaming. Traders fear that new regulations aimed at gaming will unduly affect OTC trading.

Voice brokering is still strong among a consolidating OTC brokerage community—energy brokering accounts for \$300 million in annual commissions. Brokers are bundling their deals into data, offering consulting services, and providing value-added services for clients. They also provide more flexibility, market intelligence, and better handling of fast markets than do computer screens. It should never be forgotten that human beings are transacting with human beings, not artificial intelligence. As a result this sector is not going away without a fight.

The end game for electronic energy trading is the creation of market liquidity. It is not there yet. In fact, the financial markets for electric power in the United States are still dominated at 95 percent physical rather than financial power. Thus, outside of the well-established oil and gas futures

complex on the NYMEX and oil complex on the IPE, there exists tremendous opportunity to create the electronic platforms for the emerging market of electric power, emissions, weather, coal, and liquid natural gas trading.

The hunt for liquidity is still the key to the success or failure of any electronic exchange, and lack of it cannot be masked by saying, “we have 2,000 users” or, “we have traded \$1 billion of a commodity.” The reality is that this is still the beginning of a market, and it requires that brokers be actively involved in facilitating trading on electronic platforms (as they are with Bloomberg, ICE, and several others).

But electronic trading is almost an infinite market since the development of new technology depends only on time. The rate of advancement in electronic trading technology will make current systems redundant in the next few years no matter how scalable they appear today.

More refinement and technological improvement will come as there is recognition, for example, that gas markets in the United States must trade on a next-hour basis to match the power trading requirements. Real-time will really be in real-time in the future with 24-hour markets every day of the year. B2B exchanges did not simply take existing relationships and make them digital: What they did was create new forms of transactions by automating internal and external processes.

Still, the greatest hurdle will continue to be human, not technological. Today's platforms are only the beginning of a sea change in energy trading with the best yet to come as internet access penetrates the entire energy world. Unfortunately, that change will be later rather than sooner and may take a decade for the full transition from the floor to the internet. ♦