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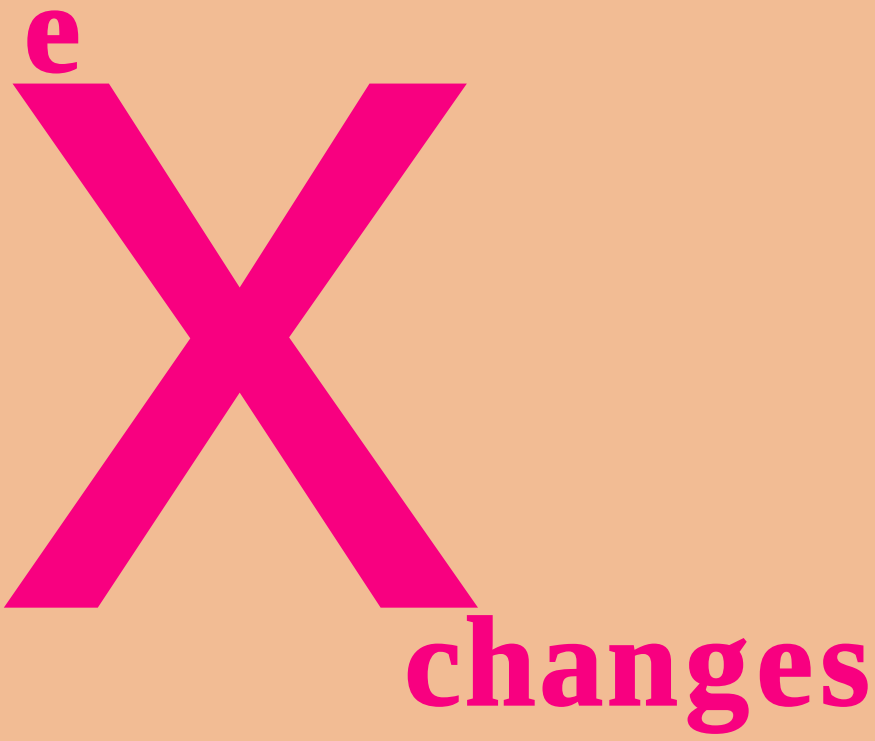

in the energy industry

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Executive Summary

Deregulation of the energy industry is contributing to a fundamental shift, taking place in the sector towards an electronic-based model for conducting transactions. Utilities that were historically vertically integrated, managing the supply, transmission, and distribution of energy in addition to other customer service-related functions, are being separated or divested. In the competitive market, supply begins in the wholesale market where natural gas and electricity commodities are traded and then resold into the retail market. Since deregulation of gas and electricity is still limited to certain states, the market reach for online trading, including wholesale and retail markets, has not reached its full potential. According to Forrester Research utilities are the third-largest industry in terms of total potential for online trading, along with banking and financial services. This indicates that in the next few years, as the industry evolves in response to regulatory changes, technological innovations, and market forces, a fundamental shift towards use on online exchanges can be expected to take place.

Energy commodities possess a variety of characteristics that make them an ideal product for online trading. The very nature of energy itself lends itself to being traded as an indistinguishable commodity independent of quality ratings and trademarks. Another unique attribute of energy is the amount of information needed to take it to its final user, creating unmatched opportunities for customization of data tracking and storage.

In addition to energy commodities, online exchanges are providing access to products and services from hundreds of suppliers, helping companies improve their entire supply chain. Such marketplaces can be structured as membership based exchanges dedicated to identifying savings opportunities throughout the supply chain to exchanges where buyers post needs and suppliers compete to offer the lowest price. The emergence of online exchanges for both commodities and other products is enabling energy companies to shift the procurement process to an electronic environment where suppliers can expand their reach and buyers can receive a wider selection and basis for comparison when making purchasing decisions.

Online trading basically involves participating in a central electronic marketplace where sellers and buyers meet to exchange products and services. In off-line trading, the process of evaluating and selecting trading partners can be extremely time-consuming and inefficient, whereas online trading allows this process to be sped up. While online exchanges give companies faster and easier access to price discovery, traditional channels are still widely used to negotiate and settle transactions. Online exchanges are, however, helping to blur such company distinctions as size, location and market presence. Practically anyone anywhere can participate, and sophisticated services traditionally reserved for large and preferred customers are available to smaller and less sophisticated companies. This report will address three different kinds of online exchanges that the energy industry is participating in – Procurement, Wholesale Energy Marketing, and Retail Energy Marketing.

A procurement exchange is an internet-based marketplace where multiple buyers and sellers come together to complete purchase/sale transactions. The basic services provided by online procurement exchanges include online proposals, price quotes and auctions. For the purpose of this report, we define procurement exchanges as those set-up to facilitate trading between energy companies of products other than electricity or

gas. Online procurement exchanges are designed to offer solutions to complex supply chain problems, create sufficient liquidity and deal flow to increase the efficiency of supply markets, and effectively integrate buyers and suppliers to create a dynamic trading community. There are three major online procurement exchanges for the energy industry – Enporion, Pantellos, and UtilityFrontier. All three of these exchanges can be considered consortium, because they are all made up of current industry participants - buyers.

A wholesale energy marketing exchange is an internet-based marketplace where multiple buyers and sellers come together to purchase or sell electricity and gas at the wholesale or bulk level. Until recently, wholesale electricity and gas have been traded in a low-tech manner. Wholesale energy marketers have traditionally had to phone around to other traders to arrange transactions, which can be a tedious process--one which online wholesale energy marketing exchanges hope to change with more than 30 exchanges exploding onto the scene in the last two years. Two kinds of wholesale energy marketing exchanges have formed on the internet: market maker and multilateral. On market maker exchanges, such as EnronOnline or DynergyDirect, the exchange operates as a market maker and is the counterparty to every deal. On multilateral exchanges, such as Houston Street or TradeSpark, another wholesale energy marketer or end-user is the counterparty, rather than the exchange itself.

Online wholesale energy marketing has the potential to provide greater liquidity and greater price transparency for traders. Transactions that used to take minutes to complete over the phone can be completed in seconds over the internet. The most important factor in the success of wholesale energy marketing exchanges is liquidity, which translates into volume. One way for smaller exchanges to establish liquidity is to link up with bigger players.

A retail energy marketing exchange is an internet-based marketplace where multiple end-use customers and retail energy suppliers come together to purchase or sell electricity and gas. The basic services provided by retail energy marketing exchanges include Requests for Quotations and Auctions. The slow pace of deregulation has limited the growth of retail energy marketing exchanges, with less than 1 percent of electricity transactions conducted online in 1999. Like other exchanges, retail energy marketing exchanges are intended to help energy buyers cut procurement costs and energy suppliers cut marketing costs. In addition, their reach can help both parties gain greater exposure to counterparties and improve price discovery.

There are a large number of companies competing in the industry currently, but several companies stand out from the others – Enermetrix, UniGridEnergy, AMDAX, and YourEnergySource. All these exchanges serve only large customers – commercial, industrial, and government – due to the fact that transaction costs are still too high to serve the mass market. While there are a number on online businesses that sell energy to mass market customers, we do not address them in this report since generally all they offer is online purchase of a fixed price product. We consider this functionality to be simply e-commerce rather than an exchange.

In essence, there are three primary methods for transacting online. The first model, bilateral exchange, involves electronic communication between two parties that wish to conduct a trade. This type of trade can take place through virtually any type of electronic communication system such as e-mail, chat-room or messaging system where there are

no requirements for membership, subscriptions or commissions. Both parties take title to the commodity, and profits are based on whatever price can be charged above cost. There is no anonymity in a bilateral exchange since there is no entity matching the two parties, and the risk, therefore, is borne by both parties.

The second model, market maker exchange, has multiple participants that use the exchange to post bids and offers. They are only able to complete transactions with the exchange host who is always the counterparty to a trade. Most implementations of this model in the energy industry have been in the wholesale energy marketing area. Both the market maker and the counterparty take title to the commodity, and profits are derived from the spread.

The third model, multilateral exchange, is a trading environment where buyers and sellers can meet to transact with each other. The exchange itself is not counterparty to any trade, but instead provides the platform that enables participants to meet in a neutral and anonymous setting. Multilateral exchanges vary in terms of how transactions are structured, their ownership arrangement and business emphasis. In the retail energy market, there are two primary variations of the multilateral exchange, the aggregator and the end-user models. Exchanges that are based on the aggregator model facilitate trades between buyers and sellers, with buyers acting on behalf of end-users.

The value of a specific exchange to a user depends on the services offered by the exchange. Exchanges typically provide services to complete, clear, and settle transactions. In addition, the exchange can provide services related to the transaction, such as credit verification, arranging transportation, and tracking the status of the order. In some cases, the exchange may utilize existing Electronic Data Interchange (EDI) services, saving each participant from setting them up. Time saved on these tasks can then be applied to increasing the velocity of transactions with the same staff.

The process of trading on online exchanges can vary widely in both structure and operation. For example, while some exchanges require only a simple registration process before participants can start using the system, others have complex registration procedures that entail company evaluations and software integration. Exchanges also differ in terms of transaction procedures and rules for fees and commissions. There are no set industry standards that guide the trading process, and until such standards are established, each exchange must be evaluated and understood in terms of its user requirements and preparations that must be made before trading can commence.

While online exchanges can help industry participants reduce transaction costs, increase price transparency, and decrease cycle times, one of the biggest challenges is to integrate the exchange and existing application programs into a single system that can serve the entire company and communicate with other systems. While specific interfaces have been used to handle transfer of data between legacy systems within a company, EDI (Electronic Data Interchange) has been the standard for companies wishing to conduct business electronically and transfer data between each other. Even though EDI has proven to be a reliable system, it is also inflexible and expensive, making it prohibitive for smaller companies to adopt. Companies no longer have to create specific interfaces or use EDI to integrate various application programs. Instead, integration can be achieved through other technologies such as Extensible Markup Language (XML). XML uses “tags” to “markup” a document. Once a document has been tagged, it can be transferred to another application within or outside the company

that can view and manipulate the document in another system that understands the tags.

Perhaps the greatest incentive for undertaking online trading and procurement lies in the possibility of reducing overhead and operating costs. Internet trading allows for the automation of many transaction-related functions that can save time and resources. Also, the reach and essentially unlimited operation and volume capacity of the Internet presents unprecedented opportunities for suppliers to expand into new markets and acquire new customers. By participating in online exchanges, buyers and sellers can greatly reduce or altogether eliminate the costly and time-consuming process of price discovery, risk management and contract negotiations. Online exchanges have the ability to fully automate the procurement process in a rules based environment and facilitate predictable results for its participants.

There are, however, challenges and concerns associated with switching to an online trading environment. Online trading is not characterized by close long-term and established relationships, due to the sheer number of potential buyers and sellers. In fact, anonymity is considered by many companies to be a tool to disguise their positions. A change in the way buyers and sellers interact has created a market with a whole new set of rules and uncertainties. Companies who choose to use the Internet for trading energy commodities and other products and services should be aware of four major areas of concern: credit risk, liquidity, system security and operating reliability.

Online exchanges for procurement of energy related products and energy commodities have only recently emerged, creating an industry that is still in the process of defining its present path and future destiny. The future development of online exchanges is influenced by a variety of factors, including deregulation of energy markets, uniformity of market developments and industry participants' willingness to embrace e-commerce and implement new technologies. Deregulation is still in its infancy and regional solutions vary widely, creating an industry that lacks contiguous markets. There are still obstacles such as reliability, efficiency and interface protocols to overcome. Until such improvements have been made, the most significant key to success, namely liquidity, will remain the chief obstacle for exchange survival.

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