

What End Users Should Know about Power Pools

Philip R. VanHorne, P.E.
Chief Operating Officer
Plum Street Energy Marketing

One of the features of the sweeping changes taking place in the United States electricity industry is the development of Independent System Operators (ISO's) as a replacement for centralized power pools. Where power pools do not exist, ISO's are being discussed as a replacement for the present system of individual regional control centers that coordinate operations with their neighbors under coordinating agreements.

The advent of ISO's is a significant development and will result in new products being developed and marketed to retail customers by energy marketers. In order to deal directly with an ISO, a buyer (or seller) will have to be a sophisticated operation with the ability to transact electricity on a wholesale level. The price transparency efficiency and wider participation associated with ISO's will lead to the availability of financial instruments that can be used to support flexible and customized pricing products for retail consumers.

WHAT IS AN ISO?

Central coordination of electricity production is a characteristic unique to electricity. The key electricity characteristics that require this central coordination are the facts that electricity cannot be stored, it must be manufactured when it is used, and at all times supply and demand must be in balance. No other commodity requires that production of the commodity be coordinated among competitors in order for

the entire industry to even exist. The current debates that center on the need for an ISO more correctly should focus on who will operate the ISO and who will decide the production coordination rules. In order for retail electricity choice to exist, development and implementation of the ISO's is a necessary step that must be completed.

An ISO serves to coordinate the operation of all power plants in a region in order to satisfy the physical operation requirements of the grid. An ISO does not determine the price or the economics of the supply, it provides analysis of the bids by suppliers and determines which plants should operate in a given time frame. The ISO decisions will also consider the operating characteristics of the network so that the final operation meets the reliability requirements of the region.

In the Northeast, the ISO's plan is to post Locational Based Marginal Prices (LBMP). LBMP is a spot clearing price that all sellers will be paid and all buyers will pay. Therefore, the bids determine which plants run and the highest bid selected determines the spot price in each area.

While the ISO appears on the surface to be a subject for regulators, utilities and energy marketers to resolve, customers have an even larger stake in the resolution of the issues. First, efficient operation of the electricity system is essential for price minimization and realization of the available efficiencies.

Second, without access to the availability of the spot price by all participants, the availability of customized pricing products will be limited to a small number of combinations.

Third and most importantly, any delays in implementing the ISO's will delay implementation of open access and customer choice.

WHY DO CUSTOMERS NEED A MARKETER?

Similarly to wholesalers in other industries, energy marketers will buy the electricity in bulk from a combination of suppliers, the ISO's, and combine the physical supply with financial techniques to redeliver the energy to end use retail consumers. The marketers will be required to manage the price volatility associated with the spot market and use their knowledge of the electric transmission system to arrange delivery.

Entities such as Plum Street Energy Marketing that have assembled a team of experts in the market area will be positioned to develop customized energy packages that meet the needs and require-

ments of customers. Products that combine the features of known price component and indexed prices to assure that customers do not pay significant above-market prices may provide the greatest customer benefits.

Full service energy suppliers will have the capability to provide a broad range of energy options to customers including natural gas and electricity. For customers who have the ability to manage their energy sources, multi-fuel energy suppliers will provide supply packages that allow switching between fuels based on supply and economics with the appropriate price protections and optional.

"Behind the meter" energy service is another service that when combined with energy commodity supply will assist the customer in minimizing total energy costs—the combination of price and consumption. The energy services option not only looks at minimizing use, but also at total energy management including level of use, times of use and selection of fuel source. The ability to create an environment where the use of the energy is adapted to react and respond to changing conditions in both the use and supply of energy will represent a significant change in the way that energy use is managed and viewed. The development of electricity ISO's will facilitate that change through the availability of new energy products and services.

WHAT DOES A MARKETER DO?

The existence of full service energy marketing services is a relatively new service. While natural gas marketing companies have been offering transportation gas to large users for approximately 10 years, the era of natural gas, electricity and energy services companies such as Plum Street Enterprises is just emerging.

In order to provide a wide range of flexible products, direct interface with the regional ISO will be a requirement. At the most basic level, the marketer will buy, sell, and transact both spot and forward energy supplies. Where appropriate, the electricity purchased either through the ISO or directly from a power plant will be combined with support from specific assets to meet the reliability requirements of the customers.

In order to achieve this combination, a thorough understanding of the electric grid and the manner in which it operates will be a key skill

that a marketer must possess. Since electricity is a regional commodity that is not readily transferable, the regional knowledge and skill of the marketer is a key requirement to meet the customer needs. Through this combination, the marketer can provide lower customer costs than what they could achieve on their own.

WHAT TYPE OF CUSTOMERS?

Different customer types will benefit from a variety of products and pricing options that will become available in the future. Four different types of customers are outlined here to provide examples of how these customers needs and requirements will be met through the deregulated electricity market.

The first type of customer is one who is budget conscious—whose primary driver is to achieve a known stream of energy costs and value price certainty in order to be able to plan and manage expenses. Institutional customers such as schools and hospitals frequently are driven by the need to have a predictable cost pattern and to avoid surprises as they proceed through their budget year. Electricity products that will fit this type of customer typically begin with a fixed price offering possibly with seasonal or time-of-day discounting depending on the usage patterns.

Implementation of regional ISO operations will support the forward market for either options or futures contracts that will allow more competitive price offerings to be developed for customers by enabling the power marketer to utilize risk management techniques to create and manage fixed price exposure. For customers who are exposed to volatility in the price of their product a liquid electricity market will enable marketers to develop pricing options that have a fixed price component combined with an indexed component to keep electricity costs relatively constant as a percentage of total product cost.

Again, an ISO operation would support the price observability necessary to allow the cross commodity trading required to develop this customer option. A further variation on this concept is to include options on increased volumes at a known price formula.

A second type of customer, distinctly different from the first, has a high degree of flexibility and even the option to switch fuel type. These customers include the industrial customers in the chemical, petro-

leum and gases businesses and also smaller customers with on-site generation options and load control systems. Customers with facilities in geographically dispersed areas that can move production to other sites to capture opportunities in locational price differences also are in this segment.

These customers may see the largest change in pricing options associated with ISO operations, since they will have the ability to respond to spot market (as short as 30 minutes) pricing and interruptibility to gain access to the lowest possible pricing. In order to reduce exposure to unexpected price volatility, these customers may also purchase price collars to mitigate spot market risk.

Again, the existence of an ISO with information and pricing available to the retail market will result in the availability of these products to the market. Indexed pricing with a tie to the either the customers input or output will be possible for those customers for whom the commodities involved allow cross commodity hedging and risk-management.

For ISO's such as those in the Northeast that are likely to include locationally differentiated prices, transmission congestion contracts (TCCs) will be a vehicle for power marketers to use to develop pricing opportunities for customers with facilities in multiple grid areas that can also shift production to respond to changes in the pattern of prices across regions.

A third category of customers who will benefit from the pricing options resulting from ISO related pricing, will be those who place a high value on protection against higher than expected spot prices. Somewhat different than the budget sensitive customers, these tend to be customers with a product dependent on electricity but without options to quickly switch production locations.

These customers include pharmaceutical companies, some paper processing companies and specialty metal processes. These customers will be looking for price capped or fixed prices with deliverability of the product at the specified price guaranteed. The products for this class may include electricity tied to bilateral supply agreements negotiated with a specific supplier outside the ISO structure or supply associated with production assets owned or controlled by the power marketer.

The final category of customer is those less energy sophisticated without professional energy purchasing functions. In order to effectively supply these customers, marketers will be expected to not only supply

energy products customized to the requirements, but also provide consulting and advice on how to manage their electricity consumption and purchasing in a deregulated environment.

The provider will be expected to evaluate the situation and provide value-added service such as energy audits, financing, load balancing and control to manage energy cost. Products for these customers, many of whom will be smaller in terms of the level of usage, will include discount based rates from a published utility tariff or index or rebate style offerings based on consumption and utilization patterns.

CONCLUSIONS

Each of these broad categories of customers will require different services and will benefit differently from ISO based price products. The more quickly the work shifts from debating the need for an ISO to implementing the ISO structures that provide the liquidity and price transparency to support these products, the sooner that the products and price options will be available. Without an organized wholesale system of exchange of electricity, true retail access will be very limited. Marketers such as Plum Street Energy Marketing will utilize the knowledge and skill associated with managing electricity products that include ISO based spot purchases to develop customized packages to meet a wide range of customer requirements in a changing environment.

ABOUT THE AUTHOR

Philip VanHorne, P.E., holds bachelors and masters degrees from Clarkson University in electrical and computer engineering and is a registered professional engineer in New York State. He is presently the vice president of Plum Street Enterprises and chief operating officer of Plum Street Energy Marketing headquartered in Syracuse, New York. Plum Street Energy Marketing is actively developing a wholesale and retail competitive energy marketing business for electricity and natural gas. He leads a team of experts in the energy marketing field with extensive experience and knowledge of the emerging competitive structures.

Previously he was director of power contracts for Niagara Mohawk Power Corporation with responsibility for the development,

marketing and administration of wholesale energy transactions, transmission service agreements, interconnection of non-utility generators, and the preparation of day-ahead forecasts and transaction schedules for Niagara Mohawk.

He has also worked for General Electric in Schenectady, NY, in the system planning area, at the New York Power Pool as a transmission planning engineer as well as various areas of power contracts at Niagara Mohawk.

Philip VanHorne, President and Chief Operating Officer, Plum Street Energy Marketing, 507 Plum Street, Syracuse, NY 13204; 315-460-3350; Fax: 3005