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Competitive Electricity Markets: Opportunity or Threat? A Customer Perspective

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Recent electricity price rises experienced by eligible customers have led to some discontent with the outcomes of market competition. Rather than a discussion of philosophical pros and cons, this paper takes a pragmatic look at the implications of competition for a medium-to-large sized customer. Specifically, it examines the challenges this creates for customers, given the unique nature of electricity, how customers can respond to these challenges, and potential opportunities this might provide.

Competition in Electricity – Good, Bad or Indifferent?

Electricity competition is subject of substantial argument – both economic and philosophical. From a practical perspective, however, the trend in Europe and many other parts of the world is strongly towards competition. Most large customers are not opposed to this development – in concept at least – being participants in competitive industries themselves. For these companies the key question, in the short-to-medium-term, is not whether to oppose electricity markets, but how to live with them. Of particular concern to many is ensuring that competition is fair and open, and learning how to manage the market's inherent risks.

Anecdotes and examples abound on both sides of the competition debate. Well publicized bumbles, such as that leading to the collapse of the Californian market, have had the tendency to over-shadow success stories, such as a 30% wholesale price decrease (17% retail decrease) in Great Britain since 1999, and the PJM¹ market, which has seen a simultaneous increase in reliability and 15% decrease in residential bills.

These statistics, though, flag a common myth that should be debunked. Markets are no guarantee of lower prices. What efficient competition does ensure is that the economically optimal provider, of those available, is used. However, structural issues, such as demand growth without a corresponding growth in generation capacity, can lead to overall higher prices in the short-term – in turn providing the market signals for greater investment.

This brings us to a simple conclusion – markets are not the panacea to all woes. The opening of the market opens up a new set of complexities and risks for customers, which will cost both time and money to manage. However, as will be discussed later in this paper, this should not be seen solely as an impost, but also as a significant opportunity.

Fulfilling Non-Market Objectives

If only its fungibility were to be considered, electricity is close to the ideal commodity, with any one MWh indistinguishable from any other. However, the nature of electricity systems confer upon them a number of other fundamental characteristics, requiring special treatment. These include:

- reliance upon infrastructure which is capital intensive, and politically and environmentally sensitive
- requirement for supply of non-energy technical services (ancillary services) to maintain system reliability
- incorporation of public policy objectives, such as energy mix and regional economic development

These characteristics are not incompatible with competitive markets, as demonstrated by Nord Pool, which operates the most liquid electricity trading market in the world, while its constituent jurisdictions are able to simultaneously address issues such as capacity adequacy and renewable portfolio standards. Initiatives such as the European Commission proposals on energy infrastructure², or the multi-year investment mechanism established by the French 2000-108 Electricity Act, serve to further the joint achievement of both market and non-market objectives.

¹ Covering the Mid-Atlantic and parts of the Midwest US.

² Published December 10, 2003.

The Importance of Market Infrastructure

In order for the market to provide a level playing field for competition, a number of key structural features must be in place, including independent grid operators, empowered regulators and transparent information reporting. A key issue in Europe is the need to address market concentration.

The fundamental solution to this problem is a greater diversity of supply-side players. However, given political realities, with many nations unwilling to break up the incumbent monopoly or force it to divest, this solution must be pan-European. Facilitation of greater cross-border flows is essential. Virtual power plant auctions and international asset swaps, such as that proposed between EdF and ENEL, are also steps in the right direction. Should these remedies not suffice, regulatory action may need to be taken to prevent market power abuse, including constraints on trading activity.

Power Exchanges (PXs) are a key provider of infrastructure to enable the competitive market. Exchanges offer an open and independent forum for the matching of bids and offers in standardised products. This trading results in robust and auditable indices, which establish a price reference. In a number of European markets, such as Powernext, this evolution has started with spot market trading³, with the aim of introducing futures trading once sufficient liquidity has developed in the market. These services are often augmented by clearing, which provides management of counter-party credit risk.

In understanding the role(s) of the PX, it is important to understand the relationship between spot and forward markets. Spot pricing is highly volatile, reflecting the close-to-real-time nature of spot trading. By contrast, forward markets reflect a single price for all hours covered by a given forward instrument, with the relationship to spot price only incidental. The aim of spot markets is not to supplant forward trading, but to allow short-term needs to be met through a market-based mechanism, rather than some more arbitrary approach.

Finally, while market infrastructure is important to market success it need not, and cannot, be perfect before the market starts. As proven in PJM, the market itself can be very effective in providing price signals to encourage transmission investment in the most economically beneficial places⁴.

Participation is Essential

Liquidity is the lifeblood of a market – market infrastructure is simply the price of entry. Without active participation, markets are illiquid, and pricing opaque.

To achieve true competition, participation from both supply *and demand* must be active and diverse. The role of larger customers is essential in creating a virtuous circle, with active participation in demand encouraging more active competition in supply.

³ In Europe, the “spot” market generally refers to the day-ahead hourly market.

⁴ In PJM, price signals provided the direct impetus for construction of additional transmission on the Delmarva peninsula.

Managing the Risks of Electricity

Electricity is, on average, the most price volatile of all major commodities – around four times more volatile than crude oil, and twice as volatile as natural gas. However, these risks can and must be managed – often with the same processes and tools used for other commodities.

Fundamentally, a customer has two choices for risk management:

1. Manage the risks itself – by building its own trading and risk management capability.
2. Let others manage the risk – either by purchasing directly from a retailer, or doing a “requirements deal” with a bank or similar institution, which will take on all risk.

Generally only the largest of eligible customers – often industrial players – will be interested in the former approach. Those that do follow this approach will need to build a hedging portfolio, based on a mixture of short and long-term deals, reflecting the trade-off between long-term certainty and near-term opportunity. This requires a range of instruments (e.g. forwards, options, etc.), in order to finely tune the portfolio to the risk being managed. Proper risk management analysis techniques, including tools for the calculation of value-at-risk (VAR) and various sensitivities, are essential.

It should be stressed, however, that the timing and extent of these activities will depend upon the type of trading in which the participant is involved. Trading on only an occasional basis, for the purpose of hedging physical production, is a very different proposition to engaging in speculative positions. Not every customer needs to establish a daily trading shop.

From Impost to Opportunity

While some participants view the requirement to competitively procure electricity as an additional chore to be performed, others have looked upon it as an opportunity to improve efficiency in this part of their business. One such opportunity is Energy Management – a mix of processes, people and systems that focuses upon development, at a corporate level, of:

- in-depth knowledge of load curves and how these relate to production processes, procedures and practices
- the ability to forecast, avoid, detect and limit, peaks in consumption
- the capacity to benchmark energy consumption across sites, lines, shifts, etc.
- the ability to leverage contractual alternatives, by examining site grouping, curtailment possibilities, etc.
- direct assignment of energy cost
- thorough and systematic energy related invoice control.

Based on Accenture’s experience, establishing such a capability can create savings of up to 20% on energy costs through :

- strengthening negotiation power (e.g. playing on volumes and lengths of contracts)
- optimising sourcing (e.g. optimising long term vs. short term arrangements, contracting the right level of power limit, choosing the optimal tariff structure)

- invoice control⁵
- integration of energy cost in production procedures⁶

Such an initiative allows a customer to more precisely assess its exposure to risk, and thus get the rationale to define which of the approaches previously described it wants to adopt.

Conclusion

The competitive electricity market provides significant opportunities for those eligible customers who choose to embrace it. While arrangements for electricity will become more complex than they have been historically, this is a complexity that already exists for many that procure commodity inputs. Customers that manage the transition to competitive electricity markets effectively could add another weapon in their competitive arsenal.

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⁵ For example, a large nickel producer saved many \$100K in a matter of weeks by improving its monthly electricity invoicing review.

⁶ For example, by initiating a power modulation program, an aluminium smelter decreased, by nearly 2%, its energy cost per ton of aluminium produced