

Advantages of integrated regional dispatch

Eliminating interface inefficiencies should result in significant market improvements through increased market integration, better liquidity and lower development capital costs.

The current prices and flows at existing ISO interface points indicate significant inefficiencies. Three distinct interface inefficiency patterns have emerged:

- prices on either side of the interface differ in the absence of physical congestion: prices for physically identical points diverge;
- interface point prices contain a significant congestion component when there is no physical congestion within the pool: phantom congestion occurs;
- price differentials on either side of the interface contradict the direction of the power flow: economic signals are lost.

All of these patterns are driven by an inefficient modeling and dispatch system. Even if market participants behave in a fully rational manner, the current modeling system does not eliminate these inefficiencies.

The non-economic irrationalities and resulting non-economic spreads lead to at least three negative implications:

- market participants must allocate resources to track the behavior of such irrationalities;
- the future behavior of non-economic spreads cannot be predicted, since the factors driving them are random and are not the result of rational behavior;
- forward non-economic spreads cannot be hedged effectively since there are no equivalent tradeable factors that market participants can use to approximate these spreads.

Allocating resources to track phenomena with no economic purpose is wasteful even if the waste is a direct result of the existing market design.

The inability to predict and hedge is even more damaging. Physically equivalent nodes located on the different sides of the interface potentially have diverging forward prices. The disconnected forward prices for the electrically equivalent nodes results in the points being financially separate, and thus an artificial fragmentation of the forward markets. Fragmented forward market tends to be less liquid and consequently provides much less support to long term investments and large projects.

A generator project example clarifies the point. Suppose a 1GW generator is to be built in Control Area A with the peak load of 10GW. The adjacent Control Area B has a peak load of 15GW. Assume that in order to obtain financing at least 50% of the plant output should be pre-sold. If the markets are fragmented, the 500 MW represents 5% of the market and is more likely to move the market significantly against the hedger than when the market is integrated and 500MW represents only 2% of it. Additionally the integrated market is more likely to have liquid quotes further into the future than the fragmented one.

Empirical observations confirm the point. The PJM market, which (in PJM's original borders) is twice as large as the New York market in terms of peak load and is perceived as being more efficient, has relatively liquid quotes for contracts with maturities in 2004 (source: Intercontinental Exchange). Conversely, none of the three relatively actively traded New York zones currently has posted quotes for 2004 contracts (source: Intercontinental Exchange).

The natural gas market provides an even more compelling example. The latest phase of natural gas market deregulation started in 1986. Since then, a single hub (Henry Hub) has evolved as an extremely liquid location used for hedging delivery risk for the entire continental United States. Currently, active trading extends into 2006 and 2007. Hedges at Henry Hub currently mitigate virtually all of the hedger's fuel risk. Market participants in the natural gas markets are highly specialized. The majority of large financial participants do not have any resources dedicated to the physical movement of natural gas. Long term transactions in natural gas occur frequently, and often are qualified as hedging rather than speculative transactions.

Improved product liquidity results in better hedgeability. Developers are able to lock-in prices for significantly larger shares of the projects. When a larger part of a project is hedged, the cost of financing it decreases. The lower cost to developers would help to increase supply and reserve margins. The latter will help to reduce the long-term price of energy and improve reliability.

The emergence of a few liquid electricity hubs where the participants can almost completely mitigate energy risk for products delivered throughout large parts of the country will be extremely beneficial for long term reliability. Eliminating potholes on that path will create benefits far in excess of those implied by mechanically multiplying spot price spreads by the observed interface flow.