



LOCATIONAL MARGINAL PRICING (LMP):

A Computer Program Pretending to be a Market

An ELCON Technical Brief

LMP employs a linear programming algorithm to perform the central dispatch function across a control area regardless of the ownership of the generators. Central dispatch and control areas are both vestiges of the old industry structure, and as a “seller’s market” is at odds with the need to develop an electricity commodity marketplace within the *New Economy*. LMP fails as a suitable platform for a real market for the following reasons:

- **Lack of Pricing Transparency.** LMP’s ex poste “pricing” provides no pricing transparency to buyers. In fact, LMP does not produce real prices. It is merely an accounting mechanism for producing a “rate” that is similar to a fuel adjustment charge. Such ex poste true-ups of costs contradict even the most simplistic of ECON 101 models of market behavior.[1] Even regulated suppliers of a service should be forced to take a risk when offering their services.
- **High Transaction Costs.** LMP assigns “prices” on a nodal basis. Even a relatively small electrical systems such as PJM or ISO New York can have thousands of nodes. The resulting high transaction costs associated with using nodal pricing limit market participation and entry. Maximizing the entry of suppliers and end-use customers who are able to resell their loads into short-notice energy markets will increase the volume of trading and minimize the need for centralized, RTO-managed, backstop markets (e.g., reserves). It is counter-productive to establish a “market” system with high transaction costs when other alternatives exist.
- **Regulated And Unregulated Services Are Needlessly Bundled.** Under LMP, transmission (a regulated service) is bundled with the generation commodity (unregulated market). Separate markets should not just be allowed, but required for each of these services. This is necessary to minimize opportunities by owners of both transmission and generation assets to manipulate this system.
- **LMP Is A New Monopoly Susceptible To Market Power Abuse.** LMP requires the establishment of a new monopoly—the pool or exchange—which will dominate the market. No other commodity is traded in such a pool or exchange.[2] Any bilateral trades must work around this constructed market and will be handicapped by the lack of liquidity that inevitably results from the creation of any large centralized, monopoly structure.
- **LMP’s Risk Allocation Is Old-Fashioned.** LMP, like traditional regulation, places most of the risk on consumers. For example, the requirement that all successful bidders receive the “clearing” price is extremely lucrative to suppliers at the expense of consumers.

Other Insights on LMP

- **LMP Must Be Imposed On A Region By Regulatory Decree.** Thus, it will be subject to all the politically-motivated compromises that are typically necessary to resolve any controversial regulatory decision. As demonstrated by existing pools (including the mandatory Cal PX), this may confer on the pool or exchange certain preferential advantages such as guaranteed cost recovery that is unavailable to an independent exchange.
- **In The Marketplace, LMP Has More Opponents Than Supporters.** In New York and PJM, LMP was the unilateral choice of the incumbent transmission providers, against strong opposition from marketers, the New York Mercantile Exchange, and consumers. Other market participants generally opposed the methodology (although some generators determined that there were limited advantages to them because all bidders received the clearing price).
- **A Real Market Needs A System Of Tradable “Physical” Rights To Transmission Capacity.** “Contracts for differences” or “financial trading rights” (FTRs) are an inferior hedge compared with forward, physical markets that operate over multiple time periods (*i.e.*, from years to minutes).
- **The Structural Rigidity Of An LMP-Based System Is Vulnerable To Market Power Abuse.** LMP becomes an unnecessary market power risk if vertical integration of G&T continues and/or horizontal concentration in generation is capable of manipulating the exchange price. This happened in the U.K. In a nutshell, a centralized exchange that operates under the linear sequential logic of a computer algorithm is a lot easier to game than a decentralized market environment driven exclusively by more random bilateral negotiation. It should be instructive that pool-based ISOs are only incrementally different from traditional central-dispatched vertically integrated monopolies.
- **LMP Requires The Preservation Of Bundled Control Areas, Which Contradicts Market Pressure For Unbundling And Decentralization.** The LMP paradigm ultimately requires the costly consolidation of control areas that can be destabilizing from both market and reliability perspectives. NERC is unbundling the basic operating functions of traditional control areas in recognition that each function can be supplied by separate entities. Most if not all of these new functions may ultimately be outsourced in competitive markets. This decentralization of operating functions—*i.e.*, the “many buyers and many suppliers” paradigm—is more conducive to market efficiency and enhanced reliability. Under LMP, if the regulators get it wrong, the market cannot correct it. Given the natural frailties of regulation, sound public policy should opt for a market structure that is more resilient to regulatory abuses.

[1]By analogy, ex post pricing of an airline ticket would allow an airline to collect a surcharge from passengers, before they leave the plane, if an unexpected headwind increased the amount of fuel consumed.

[2]Until several years ago, there was a wholesale “cheese exchange” located in Green Bay, Wisconsin. That exchange was

dissolved because independent producers (mostly farmers) believed that the huge buyers (Kraft and Land O'Lakes) rigged the exchange price. The U.K. pool has also been abolished because of alleged price manipulation by the dominant suppliers (PowerGen and National Power). This experience demonstrates that centralized, monopoly exchanges are extremely susceptible to market power abuse. Proponents of LMP often compare their exchange to the New York Stock Exchange, not because it is a good analogy (it isn't), but because commodity exchanges do not work in primary markets.

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