Power Exchanges in India: Fair, Transparent & Neutral Market Place

An Electricity Power Exchange provides a spot market, mainly day-ahead, for electricity, which like any other market matches demand and supply for each time block, while providing a public price index. India has progressed fast in the development of Electricity Market in a short span of four years - from an almost no organized market situation prior to 2004 to implementation of Multiple Power Exchanges in 2008. Some of the salient features of the implementation of the day ahead Power Exchange in India are presented below.

Voluntary Participation: In India, the participation in any of the markets – bilateral or the Power Exchanges is purely voluntary, unlike many countries in the world that have mandated compulsory participation through Power Exchanges. It is the decision of the market participant to choose the market place for buying or selling electricity.

A Neutral Platform: Power Exchange is a neutral platform, a market place, which provides the necessary electronic trading platform and associated infrastructure to facilitate buying and selling of electricity by the participants. Power Exchange in no way influences the price determination process, which is dependent on the offers and bids placed by the market participants i.e., the sellers and buyers.

Anonymity: Trading through the Power Exchanges is a non-cooperative game. Both the sellers and the buyers place bids on the electronic platform independent of each other`. No negotiation is involved in the process and the identity of the player (buyer or seller) is not known to the other participants.

Competitive Bidding: Power Exchange is a competitive bidding platform. The buyers compete with each other to get the commodity at the best possible price and the one who values electricity the most gets it. Likewise, the sellers compete with each other to offer the commodity at the lowest possible price.

Freedom and Choice: The participants in the electricity get all possible avenues for exercising their freedom and choice in terms of the products, the market place and time frame. Multiple products are available both in the Over the Counter (OTC) Bilateral market segment and the Power Exchange segment. In term of the time frame, bilateral offers products ranging from monthly advance to day-ahead and contingency. Though Power Exchange is primarily a day-ahead market, it also offers term-ahead products.

Double Sided Auction: Power Exchange as a market place facilitates, without exercising any influence, an auction mechanism where both the buyers and the sellers place bids and offers simultaneously during the bidding session. This gives rise to the aggregated supply – demand curves for price matching giving rise to price discovery.

Price Discovery: The bids and offers are aggregated and the intersection of the aggregated supply–demand curves gives the Market Clearing Volume (MCV) and the Market Clearing Price (MCP).

Social Welfare Maximization: The price discovery mechanism in the Power Exchange is based on the principle of Social Welfare Maximization. According to this principle, the algorithm of price discovery ensures that the welfare of all the market participants is maximized simultaneously. In other words, neither the buyer nor the seller receives any preferential treatment over the other, even inadvertently!

Consumer's Discount: The price discovered on the Power Exchange ensures that the accepted buy bids are those that are more than or equal to the MCP. In other words, the consumer buys electricity at a price which is guaranteed to be lower than or at most equal to the price bid the consumer (buyer) had

placed on the Power Exchange. This ensures a saving or a discount for the consumer over and above what he was willing to pay.

Generator Surplus: From the seller's perspective, the price a seller gets is guaranteed to be more than or at best equal to the offer the generator (seller) has placed on the Power Exchange. This ensures a surplus for the seller over and above the expected return.

Uniform Pricing: The Power Exchange declares a single price i.e., the Market Clearing Price (MCP) or Area Clearing Price (ACP) in a market. The principle of uniform pricing adopted in the Power Exchange ensures that the offers are placed on the marginal cost principle.

Declaration of Transfer Capability: Delivery of the trades discovered on the Power Exchanges is facilitated by the System Operator utilizing the spare margins available on the transmission system. These margins, also known as the Total Transfer Capability and Available Transfer Capability, are declared and made public upfront transparently on the websites of the System Operator well ahead in time for the market participants.

Transmission Congestion – Market Splitting: In case of congestion in transmission corridor, the market is split in the Power Exchange into different price areas split across the congested corridor. The prices in the deficit area (which is a net buyer area) are increased to reduce demand and increase supply. On the other side of the congested corridor, the prices in the surplus area (which is a net seller area) are reduced to decrease supply and increase demand. This is continued till the flow on the constrained corridor is restricted to the quantum permitted. In this process a price differential is created between the two areas and the inclusion/exclusion of bids and offers is done purely on a merit basis without any bias. It is important to mention here that market splitting may not necessarily result in a reduction in the total volumes traded.

Implicit Auction: Electricity is a bundled product. During congestion, while bidding for 'energy' on the Power Exchange, separate bidding for the transmission corridor is not required to be done by the participants. It is thus an implicit auction mechanism factoring both the carriage and content in a single auction.

Diversion of Traffic: In case of market splitting, because of the price movements, new bids and offers get accepted in the other bid areas. The selection of new bids and offers is deliberately effected due to the price movements and this causes a diversion of the power flows to other uncongested areas.

Standardized Contracts: The contracts traded on the Power Exchange are standardized contracts, terms and conditions of which are well known upfront to all the market players, thus reducing the transaction costs.

Pan India Implementation: Indian Power System is a highly meshed network and power flows between the areas may result in loop flows. The transfer capability between areas is strongly interdependent and transfer capabilities cannot be considered in isolation between any two areas. A hierarchical model with National, Regional and State Load Despatch Centres is mandated for System Operation. This has facilitated the implementation of pan-India National level Power Exchanges.

Completely Automated: The Power Exchange trading platform is a fully automated electronic platform. Each Member/Client is allotted a secure access to the trading platform where he can place the bids, know the trading results, settle payments and gain insight into other trade related information.

Home Grown System Operator Interface: The System Operator facilitates the delivery of the trades finalized on the Power Exchange. The Power Exchanges are required to act in close coordination with the System Operator and exchange data frequently. The interface between the System Operators and the Power

Exchanges is fully automated and has been designed using in-house expertise.

Instant Payments: Payment is an important area of concern for all market participants. The Power Exchanges follow a strict regime for payments wherein, payments by or to the participants are ensured on a pre-determined time frame. The buyers are required to deposit the payment on 'T+1', where 'T' is the day of trade, and the sellers receive their payments on 'T+2'.

Risk Management: An important function discharged by the Power Exchanges is that of Risk Management. All Members of the Power Exchanges are required to maintain adequate collateral margins, in proportion of the trades being carried out, with the Power Exchanges to cover any payment defaults.

Competition amongst Power Exchanges: India is a unique country in the World which has opted for multiple Power Exchanges in a singly physical delivery market. Worldwide, there is only one Power Exchange in a single physical delivery market. The implementation of multiple Power Exchanges in India has ensured competition amongst the Power Exchanges, ensuring better quality of service to the market participants and the end users.

Regulatory Oversight: In India, Power Exchange is a private sector initiative under the Regulatory oversight of CERC. The Regulator has adopted an approach of light handed regulation while providing an enabling framework for the development of Power Exchange. The objective was to provide operational freedom to the Power Exchange within a given framework and Regulation would be minimal and restricted to requirements essential for preventing derailment of the process. Private entrepreneurship was allowed to play its role so as to facilitate provision of value added and quality service to the customers. The Power Exchanges formulate their own Business Rules, Rules and Bye Laws, subject to the approval of CERC.

Transparency & Information Dissemination: The Power Exchanges make available all market related information such as prices and volumes (current and past) on their websites, transparently for all users.

Harnessing Captives & Small Players: The Power Exchange platform has brought about a transformation in the Electricity Market in India. It has turned the vision of harnessing the captive generation and bringing in small participants into a reality.

Empowering Stakeholders: Power Exchanges have provided a competitive, fair, neutral and transparent market. It has facilitated non-discriminatory access to a pan-India electricity market thereby empowering the stakeholders besides bringing in the much needed economy and efficiency.

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