



CERC Staff Paper on Market Coupling

CERC notified a Discussion Paper on “Market Coupling” on 21st August, 2023.

Objective: The sole objective of the discussion paper is the collection of bids from different power exchanges and discover a uniform market clearing price that could potentially lead to uniform liquidity among power exchanges and increase in economic surplus.

The key highlights of the draft are given below:

- IEX dominates the share in the collective transaction segment
- Coupling of Power Exchanges in India
- Discovery of Uniform Market Clearing Price across the country
- Increase in economic surplus and uniform liquidity among power exchanges can be added advantages.

Key points for discussion:

- Potential benefits in terms of price discovery:** In the overall transaction in power exchange, DAM and RTM accounts for more than 70% of total transactions. IEX dominates the collective transaction segment with almost 99% of share. Hence, it seems that the market coupling will not have any significant impact in terms price discovery.
Potential benefit of coupling in terms of uniform price discovery and best model should be discussed.
- Impact on technological innovation and competition:** The market coupling could potentially reduce the role of the exchange to mere traders whose role will be the collection of bids and financial settlement. There will be a centralized algorithm to accommodate the complex bid structures, which will result into no incentive for exchanges to innovate new products on their own. However, coupling could offer the gains in terms of increased liquidity, efficiency and competition as well as lower transaction fee.
- Entity for the role of the Market Coupling Operator (MCO):** There are two proposals regarding which entity will take the role of MCO.
 - Power exchanges as the MCO:**
 - Exchanges to perform the role of MCO on rotational basis.
 - Single algorithm to be used for price discovery.
 - Contractual agreement should be implemented between exchanges to avoid any kind of conflicts.
 - The market result obtained from the MCO can be validated by other exchanges in parallel.
 - Commission shall conduct periodic audits and analyses bid data as part of market monitoring and surveillance.
 - Third-Party MCO/ Super-Exchange:**
 - Third-party MCO will lead to less probability of conflict of interest.
 - Grid-India broadly performs the MCO activities for the procurement of Tertiary Reserve Ancillary Services (TRAS) through the market.
 - The entity will be regulated by the Commission.
- Algorithm to be adopted for coupled market:** Huge investments have been done by the exchanges for the development of their algorithm for price discovery. Each algorithm is optimized to accept certain type of bids offered by a particular power exchange. Discussion on the following points should be done:
 - Whether to develop a new algorithm or chose from existing algorithm?**
 - Which type of bid types across the exchanges should be harmonized, if it is required?**
- Mechanism of balancing and settlement:** Main points to be discussed in the section are mentioned below:
 - Would MCO act as counterparty to the power exchange w.r.t settlement rights and obligations?**
 - Would MCO charge transaction fee from the exchanges?**
 - Structure of the grievance handling framework.**



- vi. **Change in settlement process:** Should traders submit their bids directly to the MCO to get away with the transaction fee of exchanges?
- vii. **Selection of segments for the introduction of Market Coupling:** The important point of argument is the introduction of market coupling for the collective transaction segment to increase the competition, as it is the segment where the liquidity is concentrated in only one exchange.

The document can be accessed [here](#).

CER Opinion

1. **Divergence of Price Discovery Mechanism among Power Exchanges:** The discussion paper aims to bring the idea of coupling of existing power exchanges across the country. One of the main reasons to implement the same could be to allow the transmission of information across the power exchanges. Currently the power exchanges operate in isolation such that the bid information of one exchange is not visible to other exchanges. One of the implications of the same is the variation in the diversion among the discovered clearing prices in the power exchanges.

There are two ways to mitigate the implication which was discussed above:

- i. **Market Coupling:** One of the way to improve the transmission of information among the exchanges is to collect and combine all the bids from the exchanges at a single platform. This will lead to the discovery of a single Market Clearing Price for all the exchanges. The same is proposed in the current discussion paper.
 - ii. **Derivatives Market:** Another way of transmission of information between different exchanges can be through the derivatives market, wherein the underline of derivatives will be the MCP discovered under IEX since it is the largest and most liquid power exchange in the country right now.
2. **Minimum Net-Worth Criteria for a Power Exchange:** The coupling of power exchanges will reduce its role from the discovery of MCP to a role of collecting and submitting the bids to the Market Coupling Operator (MCO). This will lead to the reduction in the capital expenditure requirement for an entity the play the role of exchange in the country, which can ultimately lead to the reduction in the net-worth criteria of the power exchanges.
The reduction in the net-worth criteria can lead to the increase in inefficient services, frequent licensing and de-licensing of entities, etc.
 3. **Grievance Handling Framework for disputes among power exchanges:** The proposed framework for market coupling requires a well-coordinated approach between the power exchanges. While the document discusses about the contractual agreement between the exchanges when the exchange itself operates as the MCO, a mechanism should also be put in place if a third party will play the role of the MCO.
 4. **Dilemma of the Settlement Process between the Bidders and Power Exchanges:** Currently, the bids in the three power exchanges are cleared separately since all the power exchange operate independently in terms of bid clearing and calculation of MCP for the collective transaction segment. The process is illustrated via the figure below:

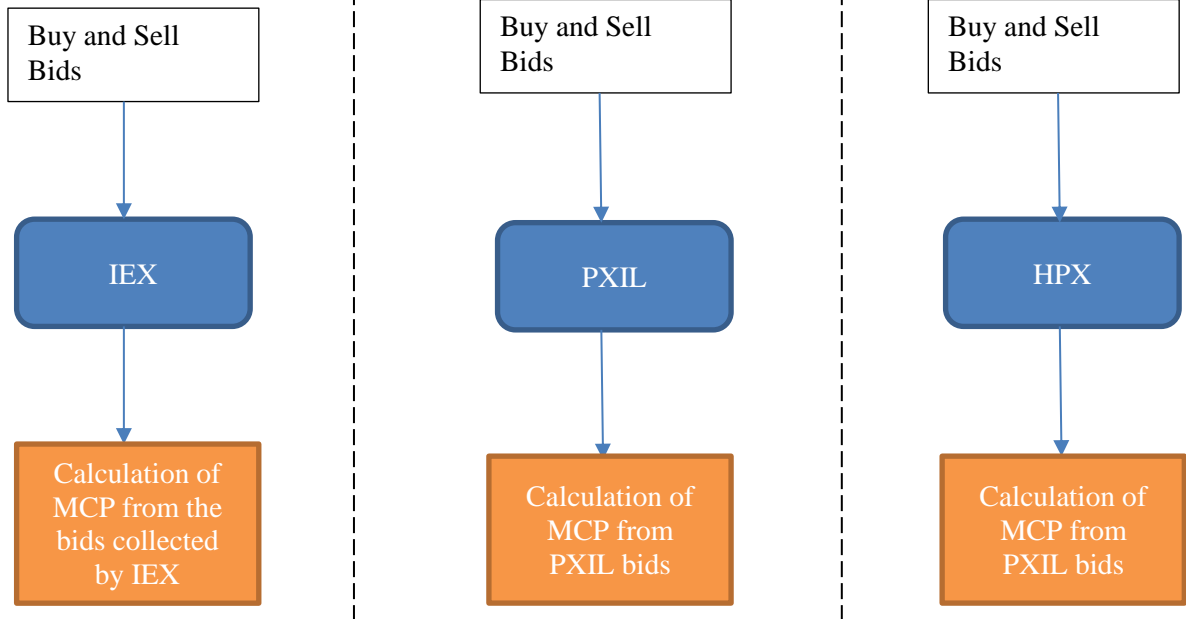


Figure 1: Current Mechanism of Price Discovery where all power exchanges are isolated

After the clearing of volumes, the responsibility of settlement of prices lies within each of the exchanges to their respective buyers and sellers. Hence, each exchange acts independently while implementing the settlement process.

The proposed mechanism in the discussion paper is illustrated via the figure below:

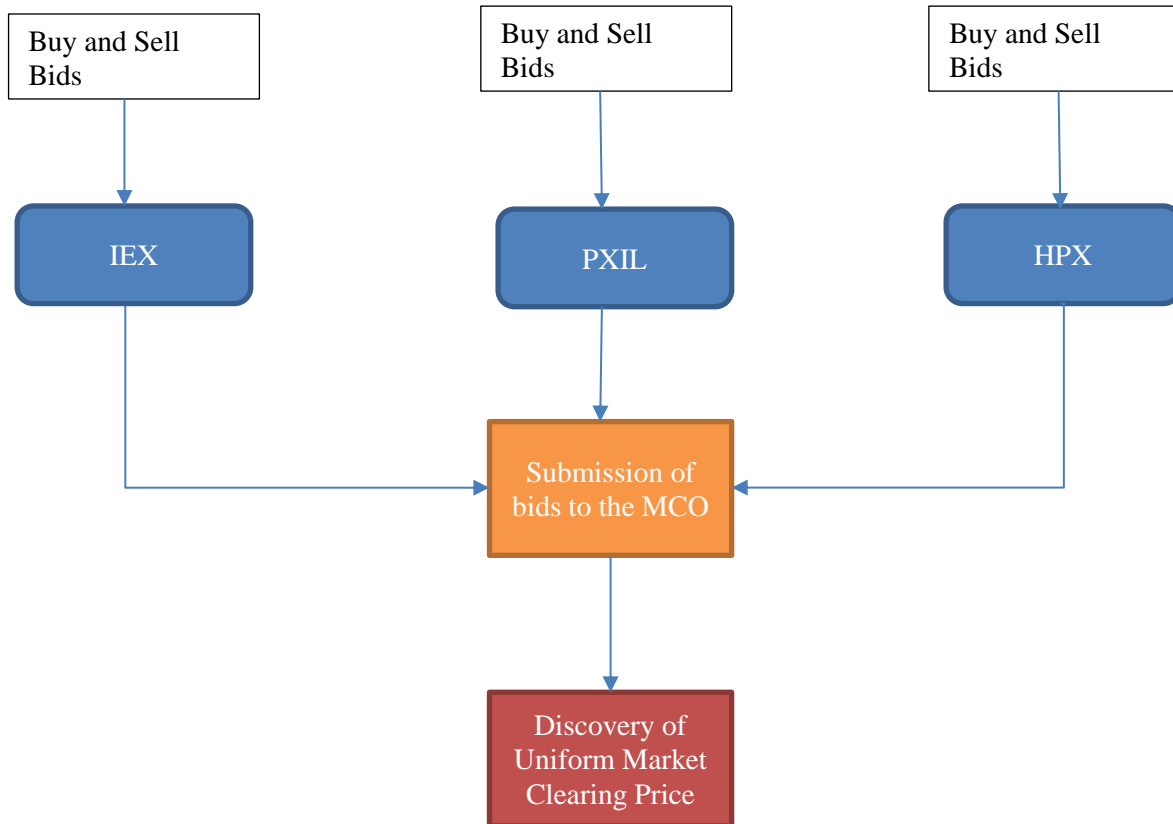
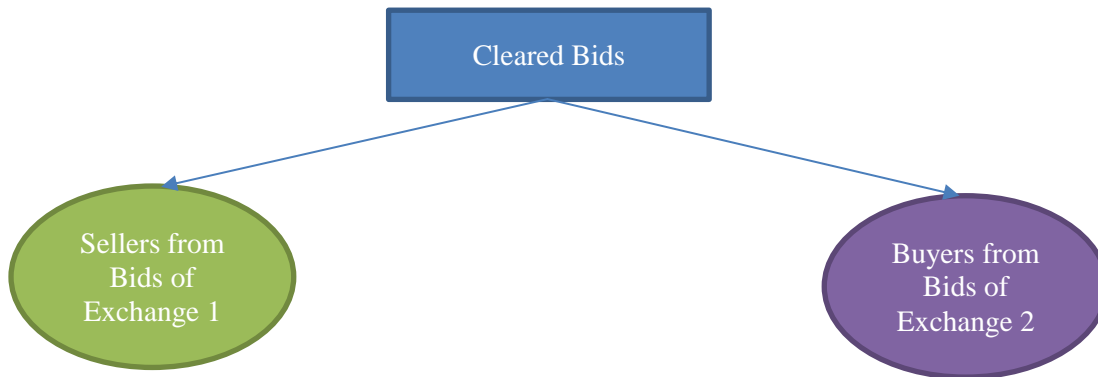


Figure 2: Proposed Mechanism of Price Discovery

The proposed process will lead to the discovery of a uniform MCP. However, situation can get complicated as illustrated in the figure below:



Here, an extreme scenario is shown for a time block where it is assumed that the bids of sellers from Exchange 1 and buyers from Exchange 2 have been cleared. Exchange 1 will have to pay the generators based on the cleared electricity volume and discovered MCP. In order to do so in a smooth way, it will also need the payment from the buyers, which in this case will have to be collected by the Exchange 2. It is possible that the payment to be received from buyers may get delayed due to any reasons, which will in turn impact the revenue flow of the sellers. This may create short or long term working capital issues for the sellers, which in turn may reduce its liquidity. This will overall lead to the decrease in the share of transaction of electricity through the power exchanges.

It is recommended that the MCO or a third party designated by the MCO or CERC will look after the overall settlement process in the proposed scenario.