

Comments on the CERC Staff Paper on Market Coupling

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This note is prepared based on the invitation soliciting comments and suggestions as stated in the above-mentioned discussion paper at the end of section 6 on the issues and challenges outlined in the section 5 of the paper.

Background

The CERC staff paper on market coupling issued in August 2023 addresses the motivation for and issues and challenges in implementation of market coupling in India as outlined in the revised Power Market Regulations of 2021 by CERC. Recently the Group on Development of Electricity Market in India 2023 has also reiterated importance of market coupling which is expected to result in an economic welfare maximizing uniform clearing price for a bidding area/zone.

While the case for a centralized market and dispatch of electricity for maximizing social/economic welfare is beyond dispute as has been pointed out by the Group and generally agreed by all sector focused economists, the staff paper raises several issues in section 5 of the paper on which I have following comments issue wise:

Does the current Indian power market scenario form a compelling case for market coupling?

1. The discussion paper correctly points out that most of the electricity dispatch takes place currently involuntarily based on long-term PPAs. There has been move to increase the dispatch based on market participation by a significant set of generators by implementing MBED (market-based economic dispatch). This, however, is yet to be implemented. The gains from market coupling at this stage are expected to be limited relative to a situation where bulk of dispatch is through market participation. Accordingly, MBED and market coupling should both be seen as complementary approaches to increase competition for dispatch and improved economics associated with a uniform price-based dispatch. Ideally, the transmission capacity should also not be reserved for anyone participating in such a market as then only social welfare maximising prices can be discovered.
2. The discussion paper correctly points out that liquidity attracts liquidity (positive externality of liquidity) and if an auction is organized, all participants who can access all the auctions will converge on the one with maximum liquidity as long as the auction is robust. Since DAM and RTM are based on auction with an identical commodity, the idea of having competition for such market might have had meaning only in the beginning. Later, the nature of market ensures that the winner takes all! Therefore, the DAM and RTM or for that matter any similar contract cleared centrally through a uniform price auction and organized at the same time will have eventually one venue for price discovery.

Effect of coupling on technological innovation and competition

1. Once it is recognized that the market for dispatch is centralized or the auctions for essentially same commodity/contract will be dominated by the most liquid auction/market, the potential for competition in that market will be, by definition, limited to origination of orders and associated issues such as managing counter-party risks associated with the entities placing the order. If the counter-party risk management is also standardized in order to ensure financial integrity of the market for dispatch, then the scope for competition will be even more limited. Further since any technological innovation for order-matching engine in such a market cannot be commercially exploited by any entity, the technological innovations

in order-matching engine will have to be driven by the market operator/ system operator on a non-commercial basis (as a “public good”) and not by the exchanges as earlier envisaged.

2. Competition, if at all, among exchanges has to be for all other contracts varying in attributes, length of contract or conditions for which currently there may be limited scope as of now. Non-deliverable or financial contracts (derivatives) settled on the basis of DAM or RTM could be created by exchanges based on market requirements once the centralized market for dispatch (DAM/RTM) has enough liquidity. The markets for such contracts can only provide the basis for competition among exchanges going forward.

Who shall be the Market Coupling Operator?

1. The discussion papers list two alternatives- (i) exchanges by rotation acting as MCO, and (ii) third-party MCO. In case exchanges were to perform this function on rotating basis, then they must have identical design of order-matching engine with identical capabilities else the users may face difficulties over time and the efficiency may be compromised. Latency (the speed) of order flows should also be identical. Further with MCO function becoming more critical post MBED or higher participation in market for dispatch, the consequence and cost of any failure or dispute in real time is also likely increase manifold.
2. Based on these concerns, a third party regulated service provider having technological and financial capabilities might be an ideally entity to act as a market operator for dispatch.

Which Algorithm should be adopted for a coupled market?

1. The discussion paper points out that currently different exchanges use different algorithms for their respective auctions and lists selecting one of them for the order-matching engine as one option. The other option being creating a fresh algorithm based on international experiences. The answer to this question lies in the previous issue of institutional design. If the existing exchanges were to act as MCO on rotation, the issue would be whether they willing to invest in both algorithm and engine without having any clear benefit from such investments and should they be trusted to maintain it in case they do not benefit from such an activity.
2. If it is agreed that the MCO will become more critical in time to come and requires more monitoring by the system operator and regulator, then the market operator for dispatch has to be distinct from exchange(s) and has to develop and maintain order-matching engine and associated algorithm.

How will the clearing & settlement be carried out?

1. The discussion paper refers to the current clearing and settlement mechanism wherein the exchanges carry out this function. The answer to this question will depend upon whether MBED is in place and who acts as MCO. In case of joint clearing of dispatch between MBED participants and exchanges, the counter-parties may not be in the control of exchanges and hence the counter-party risks associated with the MBED participants will have to be managed. If the MBED is separate from the remaining market, then the benefit from uniform price-based dispatches will be lost.
2. Further if the MCO is one of the exchanges, then the counter-party risks and settlement of trades becomes the responsibility of the exchange whose client is involved in the trade. If there is a separate MCO, then all exchanges and other order-originating entities, if any, will be responsible for the orders from their clients.

In which market segment should the coupling be introduced first?

1. Between DAM and RTM, the role of price discovery in DAM is more important from an economic point of view as there is adequate time available for buyers and sellers to manage their demand and supply. Hence from the point of view of impact, DAM is a better candidate. However, from the point of view of risk associated with any transition, the choice can be based on which market is likely to create more issues or problems associated with transition.

Overall, it is clear that different markets (PPAs, Medium and Short-term including exchanges) for physical delivery (and dispatch) should be integrated for discovering a single price. Accordingly, the CERC needs to lay out a path for such integration at the national level (or, at least to start with at the inter-state level) including implementation of MBED. Till then, the case for market coupling is quite meaningless if only liquidity at the exchanges is integrated as practically there is only one exchange attracting all the volume in the DAM segment. Splitting this limited liquidity across exchanges forcibly will only increase the spread in each exchange without any benefit of improved price discovery.

These comments are based on my academic understanding of the electricity sector and do not represent views of IIM Ahmedabad.