Comments and Suggestions on the CERC Staff Paper on Market Coupling

16th October 2023 *Prayas (Energy Group)*

CERC issued a staff paper in August 2023, seeking comments on Market Coupling. The paper has briefly and clearly articulated the debates around market coupling and has sought comments on the need for coupling. The paper also invites feedback and suggestions on how to implement coupling, if coupling is necessary.

Prayas (Energy Group)'s suggestions on coupling are in the context of the recent and upcoming developments in short-term electricity markets and power exchanges.

Coupling is said to have the potential to reduce market fragmentation, increase economic surplus and lead to uniform price discovery by definition. However, the staff paper points out several areas of ambiguity and potential risks in coupling the power exchanges. Structural changes to the most mature and efficient segment of the power exchanges can be irreversible and disruptive. Therefore, we need more discussions and clarity on the issues before proceeding. We think that the market development should focus on providing clear frameworks for price and volume certainty, robust clearing and settlement mechanisms, and support from the power exchanges for the buyers and sellers who are not mainly traders. These actions are perhaps more important than coupling for market development in India.

1 Power Market Development: Recent and ongoing changes require a stable eco-system

The staff paper on common trading platform was published 17 years ago and IEX and PXIL have been operating for 15 years. During this period, we have seen significant growth in DAM segment, RTM becoming a major contract in 3 years and India being the first country to have green products in DAM and TAM segments. However, there are several changes that the exchanges, the regulatory commissions and market participants need to prepare for in the next 3 to 5 years. These include:

— Increased participation from open access consumers with loads as low as 100 kW being eligible for open access as per the Green Open Access Rules, 2022. This would enable

consumers accounting for 30% of sales in India to participate in short-term markets to meet part of their energy requirement.

- Frequent seasonal and daily shortages faced by DISCOMs driven by demand uncertainty, rise in procurement of VRE as well as fuel related price and supply shocks.
- Implementation of GNA and T-GNA and the introduction of separate bid areas for each state
- Possibility of the introduction of 11 month ahead contracts on the power exchanges.

Going forward, market participants will predominantly be DISCOMs, end consumers and RE generators. These participants may not be as agile at adapting to evolving market conditions. To ensure increased market participation and higher liquidity, what is needed across exchanges is:

- Efficient and Transparent price discovery in the DAM and TAM segment
- Low transaction costs and simple, yet effective procedures
- Support to enable participation and easy to use online interfaces
- Certainty in trades with low risk of default, disputes
- Quick resolution of grievances, if any
- Efficient payment and settlement systems
- Continuity in systems to enable participants to become effective traders
- Evolving product structures to suit needs of consumers

Market coupling may not be necessary to address many of these requirements. Instead, coupling itself could be disruptive especially with many contentious issues regarding selection of algorithm, appointment of coupling operator etc. If operation is constrained by sustained litigation or major implementation challenges, then it is likely that:

- Buyers and sellers may rely more on traders and bilateral transactions instead of transparent and efficient power exchange contracts. This will reduce liquidity across exchanges.

— With reduced liquidity and increasing price and volume risk, states may resort more to 'Command and Control' approaches rather than market solutions to address demand supply gaps. This could be similar to recent invocation of Section 11 to meet shortages.
— Optimization of unrequisitioned capacity will suffer with generators unwilling to take the risk of participation in a thin market and DISCOMs being more risk averse, retaining their right to recall for contracted capacity.

Therefore, we think that for a 3 to 5 year period, power exchanges should operate independently by retaining the price discovery, clearing and settlement functions to allow for innovation and competition among them. As envisaged by the Commission, in the Suo Motu order in Petition No. 155/2006 the exchanges should function with *operational freedom, minimal regulatory oversight and encouragement for private entrepreneurship*. This will ensure a stable environment for increasing market participation.

2 The need for coupling and actions to address the need

The stakeholders consulted for the Power Market Regulations, 2021 identified that coupling could lead to:

— Discovery of uniform market clearing price for DAM/ RTM
— Optimal use of transmission infrastructure;
— Maximisation of economic surplus

The staff paper also mentioned these advantages. However, we examine whether these elements are essential for effective market operation.

— **Discovery of uniform market clearing price is:**
  - **Not a pre-requisite for derivatives in electricity**: If derivatives are introduced, there can be exchange specific, contract specific contracts for derivatives. This will also motivate exchanges to be innovative and increase liquidity.
  - **Not necessary for MBED implementation**: Even if many of the significant implementation challenges related to operationalising MBED are addressed, we should note that coupling is not a necessary condition for MBED. Like SCED, MBED can be operated as a separate market/ contract where only DISCOMs participate with their contracted capacity. While DISCOMs can pass-on costs to consumers or take advantage

of BCS mechanism, open access and direct consumers who participate do not have mechanisms to protect them from price risks in the market. Therefore, for overall market development, isolating MBED in a separate contract is beneficial.

- **Not crucial to determine applicable DSM charges**: The current practice of weighted average area clearing price of the highest of all collective transaction contracts in that time block seems to be suitable for the purpose of the charges. The regulations also provide for using the previous time-block charges in case no transactions take place in a particular time-block.

— **Current allocation sufficient for optimal use of transmission infrastructure**:

The issue of allocation of transmission infrastructure for the power exchanges is as old as the exchanges themselves.

- Based on the deliberations, from 2009 to 2015, allocation was on pro-rata treatment of cleared volumes, based on the requisition by the exchange.
- In 2015, the issue was re-examined based on a petition by PXIL (No. 158/MP/2013) which noted that as a smaller exchange, PXIL is disproportionately affected by the allocation and is unable to clear volumes and loses clients. Based on an expert group recommendation, the pro-rata allocation methodology was modified such that up to 15% was to be allocated to PXIL on a constrained corridor with balance shared on pro-rata basis. The staff paper also noted that there was under-utilisation of the reserved capacity with this approach.
- CERC has changed the methodology in June 2022 to pro-rata basis based on initial market clearing volume (Suo Moto Order - No. 6/SM/2022). The shift was due to the introduction of a third exchange- HPX, the need to harmonise allocation methodologies already adopted for RTM contracts and to account for reduction in congestion.

As seen by the evolution of the deliberations and the methodologies for allocation, a simple non-disruptive methodology that can adapt to market realities, new contracts and exchanges is most appropriate. Thus, pro-rata allocation is preferred to market coupling to address this issue.

— **Increasing size of the market is crucial for maximisation of economic surplus:**

Coupling of the exchanges alone may not increase liquidity in day ahead or RTM segments. In fact, combining existing bids will only see marginal shifts for the consumers. What is more critical is to increase participation in the market itself. Here, innovative contracts, bid orders and support to end consumers to participate in the market can help. Some of these are discussed in Section 8 of this submission. Market coupling will certainly impact innovation and reduce competition. For example, the seriousness and the process by which new bid orders were introduced in 2018 is evidence of the possibility of innovation. Only three of the proposed seven bid orders were approved by CERC suggesting scope for more innovation even in this regard.

There is a recent proposal to combine SCED with the RTM and proposed Day Ahead SCED/ SCUC with DAM[1]. While voluntary participation is proposed, it is unclear whether SCED/ SCUC is combined with RTM/ DAM the bid of the SCED participants will be at regulated variable charge (as submitted under SCED) or whether there will be bidding. In case of bidding, if the generators bid well above variable cost, it is likely that the market price (of these voluntary participants post gate closure) may increase, which will reduce the savings from coupling. Further, the proposal suggests significant saving (Rs. 1067 crores for FY22) in absolute terms but it is not clear what the incremental savings is of coupling as opposed to savings with operation of SCED alone. It is suggested that the proposal be evaluated with the analysis of incremental savings (rather than absolute) across scenarios of varying thermal and renewable composition in the grid and across high and low demand scenarios. Savings could differ with increased sale of un-requisitioned capacity in the existing DAM/ RTM segment, possible with amendment of the grid code in line with IEGC 2023.

[1] https://www.researchgate.net/publication/374153067_COUPLING_OF_POWER_EXCHANGES_ALONG_WITH_SCED_IN_INDIA/link/6515a436f91aee386e768832/download

Evolving Discourse around coupling and competition:

While deliberating the allocation of transmission capacity, the exchanges, NLDC, IEX, PXIL had a series of meetings from Oct 2008 to July 2009. They discussed methods for allocation which included, priority based rules, pro-rata allocation, explicit auction of transmission corridor and **merging of bids**. Merging of bids sounds similar to the proposed market coupling and the deliberations of the committee and CERC on this issue should be shared with all stakeholders to inform these proceedings.

From the deliberations recorded in Order in Petition No. 158/MP/2013 on transmission capacity allocation, it seems IEX was amenable to explore merging of bids along with pro-rata allocation and e-auction of transmission capacity. IEX proposed *"to allocate capacity to the participants with maximum utility (i.e. social welfare benefit), DAM bids from both the Power Exchanges should be merged so as to fulfill the proportionate fairness criteria."*

However, PXIL was opposed to merging of bids as it would "*would defeat the objective of Multi Exchange model*." While proposing the fixed allocation of corridor for PXIL, the exchange also mentioned that the allocation will ensure that "*exchanges will be on an even pedestal and can compete with each other on the basis of quality of the products and services provided by the exchanges and the participants will have true choice in terms of multiple platforms with a bouquet of products and services to choose from."*

Coupling would be an irreversible change and the position of the 2 largest power exchanges on the subject have evolved significantly in a five to eight year period. Thus, is it important to consider what advantage will be lost in the Indian scenario for the future with the switch to coupling.

Lack of clarity and potential risks in Coupling Proposal

Before we decide to undertake coupling, it is essential to have clarity on several issues and address potential risks. This would require detailed consultations with stakeholders, studies, draft regulations/ approach papers and draft operational protocols. The staff paper provided a framework to discuss these issues. We provide comments and suggestions on some of these issues below:

3 The Market Coupling Operator (MCO) and their role

The staff paper has highlighted the need for clarity on which entity should become the MCO and what its role will be for coupling**.**

If coupling is implemented, we suggest that the MCO should be a new, public entity. For a crucial function like market coupling, a stable, legitimate organization with techno-commercial competence and experience is required. Such an entity should be a public sector entity to inspire confidence in participants, especially state-owned DISCOMs, their consumers and the SERCs they are accountable to. However, no public entity has significant experience in handling collective transactions at this scale.

Having exchanges on rotation basis as the MCO increases uncertainty in processes and price discovery for consumers.

It is also unlikely that MCO operation and management can be jointly designed and operated by the power exchanges based on contracts. From the existing operation of the exchanges, there is potential for disputes and litigation regarding operation and management issues of the MCO, which would stall implementation.

Power exchanges have built capability over years of operation and understanding the Indian market. A new entity taking over such a crucial function would be risky and disruptive. Therefore, it is better to avoid coupling at this juncture.

4 MCO operation and harmonisation of practices by exchanges

The Power Market Regulations, 2021 state that the Commission will specify separate regulations for operationalising coupling and the MCO. If coupling is introduced, we agree with the staff paper's observations that the:

- MCO should be a regulated entity
- Protocols and technical infrastructure for data security, clearing and information transfer should be complied with by the exchanges and the MCO as specified in the regulations.
- Verification of bid results should be possible by exchanges.

— Commission should assess bids periodically as part of market surveillance.

We also suggest that:

— Protocols for reporting and scrutiny should be specified for assessment of MCO as part of market surveillance. Currently, this is specified only for the exchanges.
— Before the regulations are introduced, there should be a process for cost benefit analysis, risk assessment and specification of protocols for coupling, including contingency plans in case of coupling failure in any block. These were discussed while deliberating UK's experience with recoupling[2]. Though the rationale and coupling design are very different, a similar process can be adopted by CERC.
— The bye laws and rules of the power exchanges specify different processes for different contracts. If coupling is enabled, there should be harmonisation and standardisation of process, contract design etc., by the Commission to ensure clarity and ease of implementation.
— In addition, specification of protocols for transfer of bid information and validation of results is needed.

5 Algorithm selection and operation

Choosing an existing algorithm for coupling would give an unfair advantage to the exchange that owns the algorithm. However, a new algorithm would require standardisation of existing contracts and bid orders, as they differ among exchanges.

The Power Market Regulations, 2021 state that exchanges can introduce new contracts after ERC approval and new bid orders after consultations. It seems that with coupling, new bid orders/contracts (say, a new collective transaction contract other than DAM/ RTM) can only be introduced if the MCO algorithm can accommodate them. This would limit innovation by exchanges.

It is also unclear whether:

[2] https://www.gov.uk/government/consultations/re-coupling-great-britain-electricity-auctions-for-cross-border-trade

- The MCO can introduce bid orders/contracts
- Bids for all new, future collective contracts will be deemed to be coupled
- The exchanges have to offer the contracts/bid orders introduced by the MCO
- An exchange can oppose the introduction of a bid order/ contract by another exchange under coupling.

These clarifications should be provided in the framework itself and mechanisms to resolve future disputes between the exchanges and the MCO should be codified to avoid prolonged litigation.

Regular audits, robust, secure IT systems would be required for coupling and it is uncertain if existing practices have evolved to ensure the accountability required for coupling. It has been two years since the effective date of the Power Market Regulations, 2021. It is not clear if the exchanges have conducted periodic audit of their algorithm and the annual cyber security audit as per Regulation 28.

6 Payment and settlement mechanism for inter-exchange transactions

Coupling requires a framework for clearing and settlement especially if the cleared buy bid is in one exchange and the sell bid is in another. The staff paper suggests that a separate clearing corporation be set up to perform this function, but also acknowledges that this would take time.

Alternatively, exchange clients can choose clearing houses across exchanges, similar to inter-operability among clearing houses authorized by SEBI. Further, margin collection can be done at the exchanges and submitted to an escrow account handled by the MCO. Before exploring these measures, CERC should ensure:

- Harmonization of margins and risk management processes across exchanges.
- The proposed MCO has technical capability and independence to handle clearing and settlement functions
- Clarity on implementation of Payment and Settlement Systems Act, 2007.

Exchanges have been granted exemption till August 2024 for compliance with the Payment and Settlement Systems Act, 2007. If compliance is required in the future, there should be clarity on the role of RBI and CERC as regulators for these transactions and the procedures to follow, especially for risk mitigation. Coupling should be introduced only after this clarity is provided.

If exemptions are provided (as is the case for equity and stock exchanges), maybe coupling should be introduced only after clarity on exemption is provided for all future years.

7 Grievance redressal especially for MCO operation and inter-exchange transactions

Coupling requires a separate process for grievance redressal, not only for market participants and exchange members, but also for the exchanges and the coupling operator. The current provisions in the Power Market Regulations, 2021 only focus on grievance redressal in the power exchanges. Possible approaches to address these issues are to have an online common platform or a joint council for the three exchanges to resolve issues. However, in both cases, it is also essential to specify a process/ resolution mechanism and an institution for when there is disagreement between the exchanges or between the MCO and the exchange or the clearing houses. It should be clarified whether this function would be undertaken by CERC or a separate institution and the role of the responsible institution should be clearly stipulated.

8 Focus on improving liquidity, deepening markets through multiple complimentary measures

We think that there are many issues that need extensive deliberation and detailing before considering market coupling. Until we have clarity on many aspects, market coupling should not be introduced and the three exchanges should be allowed to operate independently.

In the meantime, it is important to deepen and broaden short-term transactions on the power exchanges. To increase liquidity, we suggest that CERC:

- **Introduce market share conditionality for operational exchanges**: CERC introduce a provision that any Power Exchange has to maintain a market share of at least 20% in either DAM or TAM segment each year after the first two years of operation. Otherwise, the exchange will have to close or merge with other exchanges. This is similar to the Regulation

35 in 2010 power market regulations but is easier for power exchanges to fulfil as the share can be in either TAM or DAM segment. Such a regulation would also discourage new entrants as power exchanges without a strong business case. This will reduce future market fragmentation.

- **Standardise Term Ahead Contracts, especially ADSS contracts**: With term ahead contracts, especially reverse auction contracts, there is the possibility of forum shopping by sellers which reduces liquidity in an event and reduces the chances of successful trades. CERC can initiate deliberations towards standardising bid event timelines and durations across exchanges to reduce the number of events for sellers to participate in.
- **Shift all short-term transactions to exchange transactions**: DEEP evolved at a time when the power exchanges could not offer contracts durations longer than 11 days. However, with regulatory clarity and t-GNA implementation, power exchanges will likely seek to launch 11 month-ahead contracts. To reduce market fragmentation and increase liquidity, we suggest that all short-term market transactions are conducted on the power exchanges and the DEEP for short-term transactions is phased-out. The portal can focus on transparent bidding for medium-term contracts.
- **Introduce forward auctions for generators:** CERC, along with exchanges, can consider introducing forward auctions for generators in the Term Ahead Segment. This will help generators offer unrequisitioned capacity when available and also help open access consumers procure power efficiently. Over time, the PuSHP portal can be phased out with this proposed forward auction contract.
- **Efforts by FoR to amend state grid codes**: As per Rule 9 of the Late Payment Surcharge Rules, 2022, DISCOMs have to intimate schedules for requisitioning power for each day at least two hours before the end of the time for placing bids in the day ahead market for that day, failing which the generating company may sell the unrequisitioned power in the power exchange. To operationalize this, the IEGC, 2023 specifies that generating stations may sell URS as available at 9:45 am in the DAM, unless consent is withheld by the beneficiary or buyer in writing. Similar provision can be stipulated in the state grid code to enable sale of

URS power as envisaged in the Late Payment Surcharge Rules. The forum of regulators can discuss adoption of such provisions in state grid codes.

- **Consider framework for collective transactions for longer-term horizons**: Over time, the emphasis on resource adequacy, demand forecasting, ToD pricing etc., will lead to better procurement planning by DISCOMs as well as open access consumers. CERC can consider initiating conversations on the contours for collective transactions on a week-ahead basis to understand implementation challenges and interest among participants, exchanges. Perhaps availability of such contracts under collective transactions will also initiate longer-term planning processes among DISCOMs and generators.

- **Transparency in implementation of Power Market Regulations, 2021:** We suggest that CERC publish major findings of the market surveillance committee along with statistics on compliance of the exchanges with provisions of the power market regulations (including audit of algorithm, IT systems audit, submission of quarterly market surveillance reports etc). This can be published on an annual basis on CERC website to increase confidence among market participants on power exchange functioning.

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