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The Secretary
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Sub: Staff Paper on Market Coupling issued on 21.08.2023

Dear Sir

I begin with averring that I have worked in the Indian Power Market for close to three decades now, with considerable time spent in the exchange market. While instrumental in building the open access market in the country, I along with my seniors and my team led to bring to the fruition, the country's first power exchange i.e., the Indian Energy Exchange (IEX). Through its efforts, adherence to regulations, technology leadership, engagement with the stakeholders, IEX has become the 'exchange of preference' for the market participants in and outside of our country and has remained so consistently over the years.

The Hon'ble Commission issued the subject Staff Paper on 21.8.2023 proposing introduction of Market Coupling in the country and seeking views on various aspects of the proposal. With my experience in operating markets, earlier in electricity and now gas, and having gone through the Staff Paper, I am happy to share my views over the staff paper as below.

The current regulatory framework has evolved after many deliberations and has been successful in motivating the exchanges as an institution to lead development of the market through the measures as below:

A. Innovations through wide Array of Products and State of Art Technology Platform – Our first petition for approval of Day-Ahead Markets (2007) and Term Ahead markets (2009) application had lot of innovative ideas to handle delivery , settlement, transmission pricing, new bids for market participants to serve prevailing needs of the power sector. Few are briefly discussed below.

Transmission Pricing on PoC & regional postage stamps. IEX innovated for implementing a pricing mechanism suitable for exchange based transactions. First devised socializing of transmission charges (transmission pricing was based on contractual path and regional stamps) and finally implemented PoC mechanism for exchange transactions, as early as 2008. We are thankful to CERC for accepting PoC based on regional stamp, which was never heard anywhere in developed markets even. Bilateral trades continued with contractual path+regional stamps till PoC was implemented in 2012.

Daily Settlement Cycle. This daily payment and settlement without delay of even a day was **first time** thought and introduced by IEX. Daily payments were not even being done by Nordpool Spot that time. Innovative new payment security attracted so many generators to put up new generating capacities.

Capacity Allocation in 2 hours. Through close coordination with POSOCO (erstwhile NLDC) worked out process and formats for capacity confirmation , that was first time in India and never thought of before. Fast capacity allocation paved way for discoms to buy/sell as per their requirement closer to the day.

Implicit Auction & Bid areas. Congesion management through implicit auction existed in Europe but implemented first time in India. This was best optimized way to allocating transmission capacities to those who values most, most economic rationale.

Block bids. IEX started DAM with block bids , a new idea in 2008. Even our competiting exchange starting in Oct 2008 did not have these bids till quite sometime.

REC Mechanism. As early as 2007, when we were putting up IEX technology and membership, along side we started working on REC. We assigned a consulting assignment to IIT Bombay and they completed study of international markets and shared a Study report. We shared our results with CERC and that we hope also has contributed in some way when under leadership of Dr Pramod Deo, the REC mechanism was launched in 2010 post public consultation.

Best Technology. Exchange has over a period brought best of technology platform from OMX(same technology company who provided software to Nordpool Spot that time. Being first to introduce new segment, we have always been providing most robust, user-friendly interfaces for bid submissions, MIS & trade reports. Later, when our volumes, market participants grew, we developed our own state of art technology platform making available different products across different timelines to enable the market participants trade as per their specific requirements.

Exchange has introduced new bid types in the DAM to meet the specific requirement of cold-start generating stations & RE generators. In order to ensure that the technology platform has state of the art facilities for Exchanges have been constantly incurring capex and opex to upgrade its technology platform. During last 15 years of its operations, Exchanges have invested significant amount in its technology platform and maintaining a large in-house development team to continuously upgrading it to stay ahead in the curve.

Enlarging the canvas for wide participation. The price discovery, efficient processes, close coordination with the stakeholders has given assurance to the Market participants to come en masse and benefit from the market.

First to give congestion signals through market splitting– Our volumes grew over time and IEX started witnessing significant congestion from 2011 which gave signals to transmission planners and that prompted significant investments in transmission system, resulting in a congestion free transmission corridor and One Grid One Price. 'Market Splitting' mechanism used by the Power Exchanges to address the transmission congestion between different bid areas/inter-regional transmission link has no doubt played its role in giving signal for transmission investment.

Market Development. Exchanges, particularly IEX has put significant effort and cost towards market development. IEX has taken several measures viz. extensive information dissemination through Conferences, Workshops, Seminars etc. and handholding through Training sessions etc. to promote participation from Discoms, Gencos, and Open Access consumers. IEX has always had most competent and highly qualified dedicated team for market development physically located across all the states in the country.

First to enable Open Access for C&I customers. IEX achieved breakthrough in getting first 1MW+ customer from Tamil Nadu and Punjab in the country in 2009. Several States join in over next 2-3 years and competing exchange, completely missed that opportunity. This

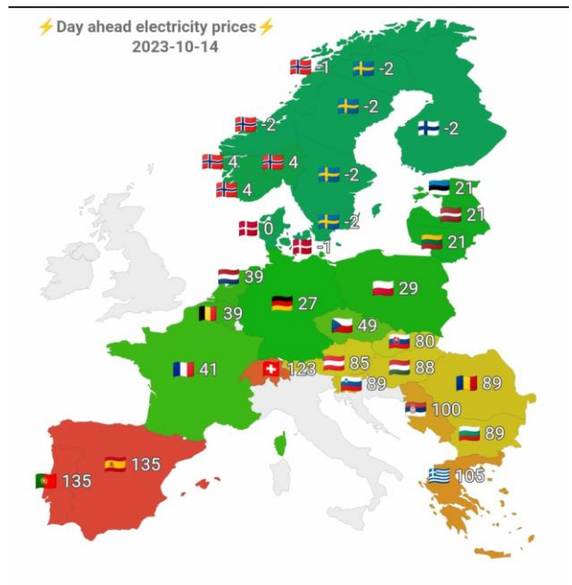
was made possible by IEX through creating awareness among industries, handholding of SLDC and customer both. This was game changer for power sector. Now, at least 10-20 GW of new generating capacity has been built just to cater to this segment and also helped in RE capacity additions.

Competition is best tool for Innovation and Optimisation. All of innovations , somewhere have been both because of own intent to serve the customer in best manner and also to keep ahead of competition. The presence of multiple exchanges and the threat of new entrants in the market has always put competitive pressure on them to keep improving their product and services offered to the market participants which has eventually benefited the market and the sector at large.

B. European Exchange Coupling --Learning from European Experience

Generally, Europe is seen as a credible example for coupling of exchanges. The European market consists of twenty-seven (27) countries and eight (8) different regions, where supply and demand i.e., technology, fuel mix and demand profile is very diverse, and there are huge bottlenecks across border The picture below gives an idea the complexity and extent of cross-border congestion. In Europe, several exchanges evolved since 1995 and each had significant market share across its region/country. By 2008, Central Europe itself had 3-4 spot electricity exchanges namely Amsetrdam Power exchange(APX), Belgian Power Exchange (Belpex), Germany & France had EPEX and managing cross border capacities became very complex through explicit auctions and they noticed capacity booking happened in many cases in reverse directions (from high price markets to low price ones). European Commission, as pilot, experimented with Trilalteral coupling of these three exchanges. Satisfied with the results, planned for Pentalateral coupling – by adding Nordpool and OMEL/OMIE (Spain/Portugal) spot exchanges. European Commission(EC), satisfied with the results and with agreement with all stakeholders decided to couple all exchanges. Price Coupling of Regions (PCR) was finally implemented by 2015. Before coupling of these exchanges, notably, all exchanges had significant share of orderbooks and coupling these order books helped them to streamline cross border capacity utilization. EC, nowhere has mentioned that the objective of coupling was to discover single price – neither for spot nor for purpose of derivative markets.

Figure. Day-ahead Market Prices across Europe on a typical day (14th Oct,2023)



a. **UK Exchanges.** UK power exchanges (N2X) and APX were **not** coupled for the purpose of single price or capacity optimization, as might be interpreted by Indian experts, but they happen to get coupled when UK was part of EU and EU-wide Price Coupling of Regions implemented.

b. **India Market 100+0+0.** Presently congestion on transmission network on exchanges is managed through implicit auction and market splitting mechanism, i.e., when the required flow exceeds transfer capability, Power Exchange determines the Area Clearing Price (ACP) specific to the Bid Areas. With close to 100% bids on IEX in both collective markets (DAM & RTM), transmission capacities get fully optimized at IEX. In contrast, each European exchange has substantial order books, including from smaller exchanges namely CROPEX(Croatia), HUPX(Hungary), HEnEx (Greek), IBEX(Bulgaria), OMIP(Spain), OMEL(Portugal), OPCOM(Romania), Power Exchange Central (Czechoslovakia) (PowerBSP SouthPool(Slovenia), besides bigger ones like EPEXSpot, NordpoolSpot. All these exchanges have liquid markets. Indian transmission network is already being optimized through IEX and even when there is some orders at competing exchange, there is mechanism for allocating transmission corridor on pro-rata basis by the System Operator.

   Further, EC requires power exchanges to be designated as National Electricity Market Operator(NEMO) before coupling and conditions for becoming NEMO is very stringent and avoids all possibilities of free-riding (exchange without any/significant orderbook freely getting market share post-coupling)

B. **Exchange Markets get concentrated liquidity.** In so far as the aspect related to concentration of liquidity is concerned, the dominance/leadership of a exchanges in a particular commodity is universal. Even though the stock/commodity exchanges in India are allowing trading on a continuous basis on price-time-priority basis, the market is dominated, at least product-wise, by a particular commodity/stock exchange to start with due to superior technology or better services in the early stages, and later it gets more concentrated. Globally also, there are precedents where the market has been dominated by different commodity/stock exchanges and have become price setter for the market. Some of the examples are provided below:

- MCX leads in liquidity (>90% share) for Energy and Metal futures in India and NCDEX in Agri commodities
- NSE - has 99.6% share of trading in the derivatives
- Shanghai Futures Exchange or Dalian Commodity Exchange of China- most liquid exchanges for copper and other metals and have become global benchmarks.
- Malaysia's BMD- known for offering the benchmark crude palm oil derivatives contract
- ICE in US and Europe offers benchmark for derivatives on coffee and sugar
- CME has Brent Crude liquidity
- Japan's Tocom offers benchmark for rubber
- London Metal Exchange offers benchmark for non-ferrous metals

But it is also true that presence of multiple exchanges helps the growth of market, better technology, customer service, product innovations, better and efficient trading experience.

Dominance doesnot mean market abuse. For India's energy transition to become successful, the exchanges need to be given room to innovate and improvise. In a competitive market scenario, where the competition can come from existing or new entrants into the market, the dominant position of an organization cannot be analogized with 'monopoly position' and as a matter of fact such dominant position will not be detrimental to the society. Needless to add, that there has to be a market oversight through appropriate statutory body to oversee that such dominant players are in no way using their dominant position to manipulate the market or stifle in any manner the competition in the market.

C. What we want to achieve?

The staff paper approach is more to assess usability of a market tool 'Exchange coupling' and then assess its benefits and issues. Better approach would have been – identify a problem and objectively assess the alternative solutions along with clear objectives. Now, doing a mega exercise of exchange coupling without setting goals is a futile and expensive one, since it will involve huge burden on the whole system like-

- Changing mandate and license conditions for exchanges who have been granted license for 25 years
- Nationalising a function otherwise authorized to few entities(PXs) through statutory regulations/orders/policies (NTP 2006)
- Make amendments in the Act to authorize System Operators to do kore than whats entailed in current laws, ie EAct,2003 (Sec….)
- Changing whole market design – from decentral to centralized market
- Making system operator 5responsible for functions not synergic with their main functions

If we look at possible goals for implementing coupling, they can be many like – *one price for the market, bring competition in transaction fees, bring price discovery role with a government body* etc. Lets look at each one and assess whether coupling achieves with benefits to the sector.

1. **One market price.** We are not aware of any example in the world where market design is being changed just to force single price discovery. Actually, multiple prices across markets create arbitrage opportunities and automatically efficient markets develop tools accordingly. In the closest example, stock exchanges like NSE, BSE; never there is a debate in stock markets for one price. Only centralized markets being operated by TSOs in USA(ISOs), Korea, Australia(AEMO), NZ, Ireland etc are operating system and markets as one single function.

   Lets see other possible reasons for need of single price.

   - ***Does derivatives market need a single price?*** No. Different derivatives are allowed to come up linked to different spot prices and the one best suited gets liquidity. There are about 200 hubs in US for natural gas, but Henry hub is most liquid and therefore futures linked to Henry hub, is most liquid. In Europe, besides TTF , there

are more than 10 spot prices, but futures linked to TTF is most liquid. There are several examples all around from other commodities like metals, gold, silver etc.

- ***Does DSM need single price?*** DSM settlement should not be linked to DAM, it should be linked to market price discovered closest to real-time – like balancing or frequency support ancillary market. There is no example across globe where imbalances are priced linked to DAM.

Out of India's total consumption of over 1500 BUs, only 100 BUs are transacted on exchanges and collective markets trade about only about 80 BUs. So, almost 95% of power consumption has hundreds of prices. Should we try to achieve single price over only 6% of total trades. Does it make sense?

2. **Bring competition in transaction fees.** Coupling will bring competition among exchanges that will put pressure on Exchanges to reduce transaction fees, but in that case, out of average cost of transaction say Rs 5/kWh, 2p/kWh of transaction fee is only 0.4% of cost of transaction. And losing innovation, competition and other benefits to customers just to save very little doesnot make sense. This approach will prove **'penny wise, pound foolish'.**
3. **Move price discovery role to government entity.** CERC is oversight body for Power and all rules and regulations are set by CERC. There is complete check on all activities of PXs. Further, there has been no irregularity noticed in price discovery in last 15 years. Therefore, this cannot be motive for implementing exchange coupling.

Should we couple SCED and PXs ?

There have been recent few experts talking of coupling of SCED with PXs. I feel while we have focused on creating market based instruments for optimizing cost of power, shifting focus to regulated activity is not consistent with markets. Govt has recently issued Rules to all generators to sell their unrequisitioned surpluses, through RTM. In case all generators bid on PXs their unrequisitioned surpluses, then SCED will be left with very little scope of optimization. TTherefore, strictly implementing MoP Rules would achieve desired optimization results.

Free-riding by Competitors. It cannot be denied that price discovery has been at the core of the aforesaid activities that exchanges have taken up to develop the market. Taking away the price discovery function will reduce the exchanges to bid collection agencies and will devoid them of any incentive to work on market development activities. Only purpose coupling will serve is free-riding by competing exchanges ie getting market share in DAM/RTM where they have almost none today.

D. Bigger Challenges before the Market

Power sector has bigger challenges in terms of savings potential – major one is increasing discom viability, AT&C loss reduction. AT&C Loss reduction will save lacs of crores for discom and improve viability. Futures market can deliver huge benefits in terms of providing forward curve and hedging tools for discoms and generators. For credible futures market, the liquidity and share of exchange should be at least 15%. And for that reason, draft National Electricity Policy,2023 envisions 25% short term market by 2030.

Therefore, **Hon'ble Commission and policy makers must focus on providing hedging tools through derivatives and help bring more liquidity in Short Term Markets.** Proposed market coupling has very little to offer and enhancing markets will expand supply and demand

through right price signals. **In view of the above, Market Coupling has no merit in the current scenario therefore it should not be considered.**

Submitted for your kind consideration

Thanking you,

Yours sincerely

Rajesh K Mediratta