

IEX Comments on the Discussion Paper on

“Market Based Economic Dispatch of Electricity: Re-designing of Day-Ahead Market (DAM) in India”.

In the discussion paper on “Market Based Economic Dispatch of Electricity: Re-designing Day ahead Market in India” the Hon’ble Commission has proposed 100% of the power generated in India to be traded through power exchanges. It is envisaged that the reform would lower the tariff, promote utilization of efficient plants in India thereby reducing the cost of generation on Pan India level, absorb large amount of RE generation, provide better clarity to the system operator in terms of reserves availability, etc. We believe that such reforms would enhance competition in the Power Sector and ultimately benefit the end consumers in India.

However, we understand that the implementation of the proposed model in the discussion paper is an uphill task. We foresee numerous operational and settlement related challenges and legal and jurisdictional issues in the process of execution of the proposed model. We list down our concerns below:

1. Overestimation of potential benefits:

“6.7 The above optimization yields significant savings in overall system costs. Table 4 summarizes the system costs in the present and proposed framework from the simulation for the month of July 2016 and financial year 2016-17.

Table 4. Saving in cost of generation in MBED (simulations for 5 states)

	System Costs (Total Cost of Generation) (All figures in Rs. Cr)			
	Present Self-Scheduling Framework	Market Based Economic Dispatch Framework	Net Savings	In Percentage (%)
July 2016	3781	3343	438	12%
FY 2016-17	58949	52729	6221	11%

Source: Simulation Result based on the data from Five States for FY 2016-17

The potential benefits of the MBED mechanism are substantial as observed by optimizing dispatch in just five states. Table 4 estimates the overall saving in the system cost by optimum utilization of the cheaper generation available in the system to reduce the system cost by 11%.”

Savings in cost of generation in MBED framework is estimated to be around 11% in FY 2016-17. However, we would humbly beg to differ as we understand that many constraints haven't been considered while reaching this figure. Constrains of transmission corridor, availability of generating station, fuel supply scenario, reserve requirements, etc. are few such constrains. Accordingly, we believe that the savings in cost of generation would be considerably lower than the amount projected in the paper. In the Consultation Paper on Security Constrained Economic Dispatch (SCED) of ISGS pan India by POSOCO, analysis carried out on 167 thermal units with a total installed capacity of 55,160 MW resulted in a saving in production cost by 1.3% only. Even in this consultation paper the compensation for loss in heat rate and increase in auxiliary consumption was not factored and it was recognized that the potential savings of 1.3% are slightly over estimated. Therefore, the claim that MBED model would help achieve a saving of about 11% doesn't hold merit.

Here, we recommend that the Hon'ble Commission may analyze the benefits accrued after the implementation of the pilot project on Security Constrained Economic Dispatch (SCED) of Inter-State

Generating Stations (ISGS) Pan India and post analysis take decision on the implementation of this proposed MBED model.

As we understand that the disruption caused by change in the basic structure of power market, which is yet to mature vis-à-vis its international peers, would far outweigh the benefit in terms of savings of cost of generation.

2. Pre-Requisites to MBED:

The proposed 'Re-designing of Day ahead Market based on Market Based Economic Dispatch' seems to be a pre-mature attempt to make changes in the power market in India.

The paper while discussing MBED model also stipulates the need of Ancillary Market, Real Time Market, Capacity Market along with Capability Contracts, Financial Derivatives, robust Communication and data transfer system between states level, regional level and central level, superior measures for Market Monitoring, etc.

Before introduction of MBED model it is required that the Hon'ble Commission finalizes the above mentioned components of power market. Anything done in haste without robust ground work could cause irreparable damage in the power sector.

3. Realigning Fuel Allocation Methodology:

In the MBED model all the generators whether central owned, state owned or IPPs would be bidding in the same Day ahead market. Those generating stations with contracted capacity and having fuel linkages would be benefited in terms of scheduling of power because their variable cost would be low as they would be allocated concessional fuel from Coal India. However, generating stations having no contracted capacity i.e. merchant plants would invariably face fuel shortage as well as the fuel procured by them would be auction coal. The fuel cost associated with auction coal is significantly higher than concessional

fuel cost. The day ahead market would be lop-sided in favor of generating stations having fuel linkages. In this case, a technically more efficient generating station may not get scheduled at the cost of inefficient plants due to unavailability of concessional fuel. Therefore, as per the present method of fuel allocation, the idea of achieving a national level optimization of scheduling of generating stations may not be achieved.

We believe that in order to achieve the objective of efficient and optimum scheduling of generating stations, as mentioned in the discussion paper, fuel allocation methodology should be reworked.

4. Power Sector Investments:

We believe that the design of MBED model may not be very attractive for investment in power sector. The concern is out of the fact that no state would be eager to sign a new PPA with a generating company as it would be obliged to pay fixed cost outside the market. A national level clearing based on variable cost would encourage DISCOMs to bid only in energy terms in order to avoid payment of fixed cost. Generating stations which have already entered into PPA would continue to get fixed cost while no new generating company would venture into setting up new plants. Any new power plant would have to recover the cost of its investment out of the MCP discovered in the day ahead market.

Reluctance of DISCOM to sign PPA would stem from the fact that the onus of having capacity would shift from state level to central level. At the same time the generating companies would have no incentive to plan an investment in power sector. Socialization of generation at national level would lead to planning complacency at the state level.

Presently, states play an important role in promotion of Renewable Energy. From land acquisition to providing all types of clearances are assisted by the concerned states. This is mainly because the State DISCOM signs a bilateral contract with the Renewable generator. In the absence of incentive to sign PPAs

with RE generators, states reluctance could be a major hurdle in achieving the goal of large scale RE capacity addition in India.

5. Legal and Jurisdictional Concern:

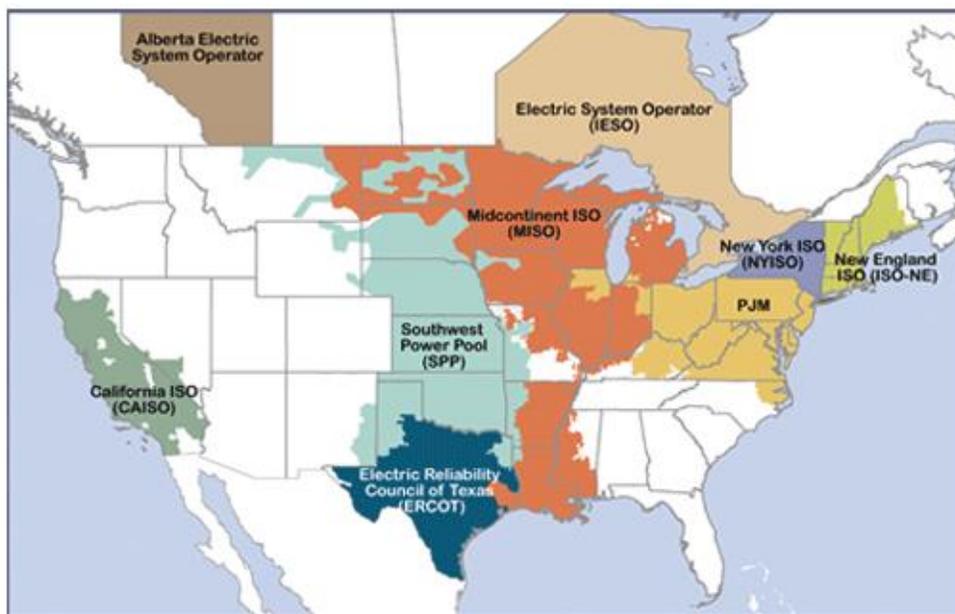
India is a large country and in this light electricity was kept under the Concurrent list of the Constitution of India. States have contracted power from ISGS, IPPs, State owned generating stations, etc. these contracts are legally binding contracts signed bilaterally. States in India have the right to schedule their contracted generators as per their requirements. Taking away their right to schedule or replacing the contracted generators from schedule of a state would be considered as infringement to the rights of a state in a federal structure of decision making. States are well aware about their requirements and taking away the flexibility to procure and schedule power at a de-centralized level would make power market inflexible. States would not be responsible for the financial implications as the decision of procurement, schedule and dispatch of power is being done at the central level. The voluntary market design preserving the concept of state wise control areas, responsible for self-dispatch, is fully aligned with the functions of SLDC, RLDC and NLDC as per The Electricity Act, 2003. Therefore, the proposed model would hurt the federal fabric of our country that is enshrined in the Constitution of India.

6. Integration of Markets:

In Europe market coupling has already taken place across 23 countries and is on its way to achieve an integrated market. Integrated European market has helped increase transparency, efficiency, liquidity and social welfare. Accommodating high level of renewables and balancing it over wider region has allowed several geographic and technical diversities to be exploited and reduce the overall balancing volume.

However, integration of European Electricity Market is only in terms of Price Coupling Mechanism. In Indian context, integration of South Asian countries and discovering a common price in day ahead market would be in the same line. However, amidst the integration of different markets, it is important to remember that all the countries have a de-centralized form of power market management. Decision making in terms of demand, schedule, reserve requirement, transmission planning, etc. are done in a de-centralized manner. In Europe there is no central agency that plans procurement and supply of power or the reserve requirements. Decision making is left to the individual entities for a better management and utilization of available resources.

Even in the United States there are seven Regional Transmission Organizations (RTOs) or Independent System Operators (ISOs) that operate power markets.



It is important to understand that even though the model followed by each of these RTOs may be of centralized dispatch, but the fact that there are several RTOs/ISOs automatically makes the overall power

markets in USA as a de-centralized market. All the seven RTOs are responsible for making their own decision when it comes to schedule and dispatch of power. Procurement and supply of power is limited within the region of the RTO/ISO. Therefore, it is important to acknowledge that inherently the USA Power market is a de-centralized in terms of power system planning and operations.

7. Development of Cross Border Trade:

India has pioneered the cooperation in the South-Asia region on the SAARC platform. Presently, government is working on fostering regional cooperation and agreement for Import and Export of Electricity among the neighboring countries. The policy issued by MoP in December 2018 significantly liberalized the requirements for trade across the region. In the said guidelines it is envisaged that entities would be allowed to trade in the day ahead market of the Indian Power Exchanges. This is in line with the Price Coupling Mechanism in Europe. However, we believe that in the proposed MBED model needs to accommodate the provision for CBT also in the day ahead market.

8. Bidding by the State DISCOMs-

Weakest link of India's power sector, the distribution segment has been battling various challenges such as controlling aggregate technical and commercial (AT&C) losses, ensuring financial viability, providing electricity access to all households and reducing inefficiencies in power generation and planning. Even after the DISCOM debt have been restructured under the Ujwal DISCOM Assurance Yojana (UDAY) program, the State-owned electricity distribution companies' (DISCOMs) losses are Rs17,352 crore in 2017-18.

As per the MBED, DISCOMs would bid their demand in the power exchanges. This demand will be a cumulative demand which would include the power required from contracted capacities under long term, medium term and short term and extra requirement. As per the prevailing risk management practice

followed by power exchanges, pay-in amount of an entity is collected in a day in advance. We understand that volume traded by each DISCOM would be of very high quantum. For example we consider a state with an average demand of 7000 MW across the day. The state would have to maintain a margin of around Rs. 58, 80, 00, 000 (considering Avg. MCP= Rs. 3.5/KWh)_ plus transmission charges and losses, exchange margin and other operational charges. Considering that today these discoms enjoy an average credit period of 45 days from the Generators, there would be need of additional working capital of about Rs 3000 cr for that discom. At national level this requirement would be around Rs 70,000/- crore.

The DISCOMs in India are already into financial distress. It would be very difficult for them to maintain the large amount of margin on a daily basis. Financial institutions are likely to be reluctant to financial assistance to DISCOMs under the prevailing conditions. In case of non-availability of sufficient funds would lead to consequential blackouts. Moreover, default by any participant at the exchange could cause serious cascading effect.

In this light, it is important to evaluate whether the idea proposed in the MBED model of procuring all the power from power exchanges on a Day ahead basis is practically implementable.

9. Centralized vs De-centralized model

The question whether centralized dispatch should be implemented in Indian Power market, which has historically evolved in a de-decentralized manner is a moot point.

In a centralized model the decision-making power rests with the central agency for strategic planning of available resources, generation-supply scenario, reserve requirement, transmission corridor availability and other critical decisions. Power market is characterized by sudden change in parameters which requires decision making power to be de-centralized for a better management and operation of power

systems. A robust coordination between the state and central level agencies becomes imperative in a centralized model. During the time when generation of power is getting de-centralized and consumers are becoming sellers as well as buyers, a shift to centralized planning of doesn't hold merit. In a decentralized model the decision-making power is distributed throughout multiple states and regions in India.

Centralization may have some glaring benefits like cost savings, standardization, optimization, etc. however, drawbacks would appear in a long run. With the significant capacity addition of Renewable Energy, which is mostly infirm and intermittent, switch from a de-centralized model seems inconsistent. A de-centralized model has the benefits of better flexibility in decision making and handling operational challenges, closer to consumers' real time variations and more timely information flow. Therefore, a decentralized market is less likely to fail due to sudden changes in demand-supply situation or transmission constraints. Decision making at lower level sets accountability on the ground level and leads to better assessment and measurement of resources and probable outcomes.

We feel that in order to optimally utilize the RE capacity, regulators must ensure that ISTS connected RE projects are encourage while keeping the de-centralized nature of power market.

10. Settlement issues:

The proposed MBED model will bring along with tremendous operational challenges. Block wise settlement of MCP and variable cost under BCS for each time block in itself would be very massive task. Moreover, the issue with regard to fixing of variable cost and settlement thereof, would trigger a lot of litigation in the power sector.

11. Alternate Approach to creating optimal dispatch:

Considering the objectives in the proposed discussion paper, an alternative to the proposed model is suggested for consideration. We believe that the objective of optimization of generation pan India level, as envisaged in the Discussion Paper, could be achieved through an alternate way and with minor changes in the extant procedures and regulations. In the Draft GNA regulation drafted by Central Electricity Regulatory Commission, it was suggested that the State shall be allowed to sell its share of surplus power at the injection point of that ISGS thereby avoiding additional cost of transmission and making the transactions more cost efficient. If this proposal is accepted, the States would be able to sell their un-requisitioned power in the open market (either through DEEP Portal or through PXs). Thereby, the power under the LTA having low variable cost will not remain un-dispatched. This would naturally establish a national merit order dispatch method. Needless to mention, this system would work well if the right to recall is restricted only up to the day ahead requisition by the beneficiary.

Presently, a state has to pay both injection and withdrawal PoC charges for such transactions which make such transactions commercially unviable. Such notional charges are creating a distortion in the power market. With the implementation of the amendment proposed in the draft GNA regulations, a beneficiary of a Central Generating Station would be able to sell the un-requisitioned power at the Injection Point of the generator. This power sold in the market could be bought by any other consumer who doesn't have the power tie-up with that Central Generating Station while replacing its costlier power from the other generating stations. Therefore, the concern that the power stations with low variable cost remain unscheduled will be eliminated across regions.

Apart from the abovementioned points, we would also like to mention that there are several other issues regarding the implementation procedure of this mechanism, which can be separately discussed and finalized.