

Comments on CERC Discussion Paper on Market Based Economic Dispatch of Electricity: Re-designing of Day-ahead Market (DAM) in India

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1.	Chapter 2 - Issues in the current day ahead market design	<p>The Discussion Paper deals with the following issues :</p> <ul style="list-style-type: none"> i. Self-scheduling by Discoms results in sub-optimal (variable cost wise) dispatch because each Discom has to first schedule from its own basket of PPAs and it does not have the right to schedule from un-contracted generating stations. Each Discom schedules its power in a silo. There is no all India visibility of available generation to an individual Discom while scheduling (2.2) ii. Available URS from cheaper variable cost plants would not be utilised not withstanding technical constrains (2.4 , 2.5) iii. Lack of flexibility to meet variation in demand (2.6) iv. The existing mechanism of scheduling weakens the physical and financial sanctity of transactions, as both generator and the Discoms can revise schedules without any financial liability at a short notice of an hour. This makes operation of grid prone to uncertainties. (2.7) v. Discoms are not obliged to declare the variable cost of scheduled generation and 	<p>The Indian electricity grid is divided into state-wise autonomous control areas managed by the SLDC, which in turn is supervised by RLDC and NLDC. Each control area is responsible in real time for balancing its demand with generation resources.</p> <p>The Discussion Paper proposes a central market operator to dispatch the inter-state as well as intra-state generation plants, while the responsibility of balancing the load and generation will still be that of the SLDC. Further, the various options presently available in the voluntary market design shall be closed. All day-ahead contracts will become inflexible and the Discom/SLDC will have to buy/sell power in the real-time market for maintaining a demand-supply balance in its control area.</p> <p>Presently, a merit order dispatch principle is followed by all States from the basket of intra-state and inter-state resources and they also buy/sell on the day-ahead power exchange. The un-tied private power generators eagerly search for buyers in the bilateral market as well as Power Exchange. Therefore, the availability of tradable power, cleared as well as un-cleared volume of power is visible on a daily basis across the country, publicly.</p> <p>The Un-Requisitioned Surplus of any plant having variable cost at par with the open market price gets fully dispatched, subject to technical constraints and hence this issue only relates to plants having very</p>

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		<p>the true system marginal cost is not known.</p> <p>vi. Self-scheduling often constrains optimum utilisation of RE sources as the visibility of a Discom is limited to its own territory, surplus renewable generation within the state is curtailed by Discoms (2.8 (iv)).</p>	<p>high variable cost. Factors such as the transmission constraint, fuel constraint, plant outages and prevailing market price need to be considered for a realistic estimation of the quantity of URS which ought to have been scheduled. This aspect needs to be analysed in greater depth in the Discussion Paper.</p> <p>Typically, the capacity of most plants is contracted under long term PPAs with Discoms who carry a lien on the entire capacity and they have discretion to recall the URS at anytime and release it for market sale or retain it as reserved capacity for any unforeseen demand. Therefore, in any market design, if the URS is not released for sale by the Discoms or its price is high, it will remain unsold.</p> <p>Flexibility of revising bilateral schedules by the buyer and seller helps the generator to true up its actual machine availability with the schedule in case of any technical issues. As a consequence, there is reduction in drawal schedule of the Discom and a clear signal to the buyer to either curtail load or arrange additional power so that power balance in the grid is restored. The Discussion Paper proposes to withdraw this flexibility to generators and Discoms and instead proposes declaration of firm schedules for a day. In this proposed design in the event of a sudden load reduction on account of unexpected weather effects, the Discoms will not be able to curtail their drawal schedule and also not be able to sell such over-drawal in the real time market due to lack of buyers in the event of a sudden drop in demand due to change in weather. Moreover, under this design, the injection schedule of generators would not get revised</p>

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			<p>and result in over-generation and high frequency. The Discussion Paper needs to put in place adequate mechanisms to ensure grid security.</p> <p>The RE sources are must run as per IEGC and state grid codes. The inter-state RE generating stations are not dependent for sale on the host Discom. RE stations having PPA within the State are governed by the applicable PPA and are curtailed only in the event of transmission constraints during very high RE scenario or transmission outages or such technical issues. Such issues would continue to occur in real-time. The SLDC has ample visibility of their generation sources, including those causing reduction in net demand.</p> <p>It is not clear whether the open-access consumers would be permitted to buy power from the national pool. Figure 14 in the paper gives the impression that the open-access consumers and cross-border generators are excluded from the proposed market design.</p>
2.	Chapter 4 - Proposed MBED Framework for DAM - Scheduling, Dispatch and Settlement	<ul style="list-style-type: none"> i. All GENCOs - central, state and IPPs, to quote on PX on day-ahead basis ii. Discoms not to directly requisition power from ISGS, state GENCOs or IPPs with whom the Discoms have existing PPAs. iii. All Discoms to send buy bids to the PX on day-ahead basis iv. In case of a two-part tariff PPA, the fixed component of tariff shall be paid outside 	<p>Clarification is required with respect to bidding as to whether GENCOs will have to bid on actual variable cost of power or Contracted Price with DISCOMs or whether it is above Contracted Price or lower than Contracted Price.</p> <p>Comments:</p> <ul style="list-style-type: none"> i. Regulatory and legal framework: It is apparent that the proposed mechanism requires a review of existing laws and regulations unless all the states agree voluntarily for centralised dispatch and

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		<p>the market</p> <p>v. It is expected that the Gencos shall bid in the market according to their variable cost/ marginal cost</p> <p>vi. The buyers will be supplied electricity as per their load and the generators will get dispatched in merit order up to the point where the total system load is met; and the contracts would be settled bilaterally</p> <p>vii. MCP to be discovered for each time-block.</p> <p>viii. Uniform MCP for all demand and sell bids [subject to settlement as per bilateral contract outside the market and market splitting]</p> <p>ix. The sanctity of contract not to be disturbed and the difference between MCP and contract variable price to be settled outside. The capacity charge has to be paid outside.</p>	<p>decentralised balancing mechanism.</p> <p>ii. Pre-requisites to a national power procurement pool:</p> <p>a. Fuel adequacy: Power plants having Long term PPAs can secure long term coal linkages whereas power plants not having such Long or Medium Term PPAs are constrained to buy expensive coal through e-auctions which has limited availability. Substantial benefits can only be derived by Discoms for passing on to the consumers if there is equitable distribution of Fuel. It is observed that there are many new fuel efficient, environmentally compliant and grid friendly power plants of unit size 600/660 MW not having secure long term coal linkages and incurring losses. Adequate fuel needs to be supplied to such plants at par rates so that there is substantial replacement of costly power with cheaper power. Therefore, satisfactory resolution of the issue of fuel inadequacy should be a priority.</p> <p>b. Issue of Fixed Charges of old plants: The Hon'ble Commission's order in petition number 4/SM/2018 dated 11th April, 2018 highlights that the national average cost of procurement of power has been increasing year on year through FY 2015-16 to FY 2017-18. Apart from the technical and commercial losses, at the consumer end network losses and distribution cost has to be added which further increases the average tariff. Moreover, the Discoms are burdened with fixed charges of vintage thermal power plants of low capacity and operating at very low PLF and also not compliant with the</p>

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			<p>new environment norms. The National Electricity Plan for the period 2017-22 (13th Plan) has recommended retirement of 59 units of aggregate capacity 5,926.5MW on account of aging and 16,789MW capacity due to inability to meet new environmental norms. The retirement of the notified thermal power plants would have significant impact on CO2 emissions and more coal would become available for the new and efficient power plants, apart from reducing the burden of fixed charges of power plants operating at low plant load factor. CEA has also notified future retirement plan for 2022-27 of about 22.5GW. By reducing the fixed charge burden, the retirement of cost plus plants would enable discoms to buy more renewable energy. This is further beneficial considering that such vintage plants are not capable of providing flexible output required in high RE scenario for maintaining load-generation balance.</p> <p>c. Revenue recovery of untied capacity and market surveillance: The majority of base-load capacity in India is tied up in cost-plus long-term PPAs with two-part tariff. A significant new private generating capacity has to sell power in the short-term market at a composite price, having no way to recover fixed charges separately. In such a scenario, it will be difficult to monitor the bidding pattern of private generators, particularly when they have accumulated losses. Such IPPs cannot be expected to quote at their variable cost alone. Normally, these IPPs quote according to market</p>

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			<p>conditions and try to recover fixed charges during peak hours and sometimes sell at a loss during off-peak hours just to keep the plant running. Hence, effective market surveillance in such conditions would be a challenging task.</p> <p>d. Capacity market and financial markets: The new scenario may prove to be a dampener for fresh investment by private sector and bankers, unless a capacity market is created through separate capacity bidding. In fact, it would stand to reason if the existing thermal capacity, including the one tied up in more than 12-year-old cost-plus long-term PPA, is also migrated to capacity market via competitive bidding, and the cost-plus approach is phased out. The paper proposes that the discoms may continue to bear the cost-plus fixed charges of all existing contracts for power as a hedge against price volatility. This is a costly proposition for discoms. It would be worthwhile to allow financial trade of electricity in the commodity market for the purpose of hedging. The paper has mentioned the discoms' need for a hedge against price volatility. However, hedging is equally important for financing new generation projects and this can only be provided by a robust financial market for electricity.</p> <p>e. Arbitrage between day ahead national pool and real time market: In the present market design, there are multiple options to buy/sell in the open market. However, the new design proposes to close diverse options, including that of seasonal barter trade between discoms, and reduces the</p>

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			<p>market to three successive segments—day-ahead, ancillary, and real-time. The proposed market design requires safeguards from the dangers of gaming. Ancillary and real-time markets will provide the generators and surplus discoms with the opportunity to make super profit. There is also a possibility that generators may not declare their real availability in the day-ahead market, but they may declare additional availability in the real-time market. Discoms can create artificial shortage by buying more than the required power from the national pool, and profiteer by selling their surplus in the real-time market. A suitable mechanism would have to be devised for preventing the withholding of capacity in the day-ahead market. This would prevent profiteering by generators and discoms.</p> <p>f. Impact on planning for power: At present planning is done for development of power resources at Central as well as the State level. Under the proposed mechanism of a national pool, there is no motivation for the State planning agency to play a pro-active role in harnessing their own resources of power because, if a State or private entity establishes an intra-state generating plant, it cannot be scheduled through the SLDC and has to be compulsorily bid in the national pool even if the State Government has invested in the power plant. On the other hand, the Discoms of the state would be free to bid their daily demand in the national pool irrespective of their own generating resources. As a result,</p>

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			<p>the onus of adequacy of generation resources to meet the demand would shift from the State to the national pool operated by the Central Government. This would effectively move the responsibility for the development of generation resources for the entire country to the central government, encouraging complacency in the state planning agencies.</p> <p>g. Disruption of the present Renewable Purchase Obligation (RPO) mechanism: The existing RPO targets are complied by the Discoms through bilateral power purchase agreements. The energy accounts of renewable plants are issued by the Regional Power Committee/SLDC according to which the RE plants raise invoices on the signatories to the PPA. In the proposed mechanism of mandatory national power exchange, the RE plants would have to bid for sale to the exchange and the Discoms will bid for the total quantity of electricity to be bought. Therefore, identification of whether a particular State is meeting its RPO obligation specifically in terms of energy would not be possible and hence, the RPO mechanism would require a review.</p> <p>h. Increase in working capital requirement: The standard long term PPAs provide monthly billing cycle and payment period of 30 days during which the buyer is entitled to 2% discount on the invoice price. Under the new mechanism, the payment cycle has not been discussed. In the existing power exchanges, the members are responsible for maintaining the</p>

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			<p>margin money, and the power exchange has the right to block the funds in the buyers' bank accounts. There is a daily settlement cycle and the sellers are paid on the 3rd day. If the same system were to be adopted in the proposed national pool, it would present the discoms with a financial challenge.</p> <p>i. Impact on Cross-Border power exchange: The GoI policy on cross-border trade of electricity in 2018 by way of the Guidelines for Import / Export (Cross Border) of Electricity-2018 issued in December 2018 liberalizes cross-border power exchange. The Indian Power Exchange has been opened up for cross border trade following debate of many years. Considering that it was a long standing demand of the neighbouring countries, this is a welcome step for hydro power projects/investors in Nepal and Bhutan. It will provide India with clean hydro energy having high inertia for grid stability. The proposed concept of national power exchange does not fit in with the Cross Border Guidelines of India because it has so many aspects relevant only to Indian entities. The optimisation of electricity resources at the level of South Asia would yield far greater advantages besides improving political relations through electricity trade.</p>
3.	Chapter 5 - MBED Implementation and Operational Aspects	a. All such bilateral contract holders participating and getting cleared in the day-ahead market will then receive the "Congestion Amount" if the congestion occurs in the "direction" of the contract	1. Clarification is required, w.r.t bidding under MBED & settlement, regarding nature of Transmission charges and losses applicable for MBED transaction. In case IPP/State GENCOs located in the State and connected to STU network only, having Contract with the same State DISCOM with delivery point at Project bus-bar,

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		<p>and will have an obligation to pay for congestion if the congestion occurs in the direction “opposite” to the direction of the contract.</p> <p>b. Participation would be initially voluntary.</p> <p>c. The existing arrangement of self-scheduling of the long-term PPAs to continue during the transition period of one year.</p> <p>d. After one year, MBED would become a mandatory national pool.</p>	<p>whether transmission charges for CTU system is payable for above transaction.</p> <p>2. Clarification is required w.r.t point 5.26 that if the DISCOMs exercise the right to recall then the generator will have to buy back from the real time market.</p> <p>3. PPA states that incentive will be paid based on schedule by the contracted DISCOMs however; clarification is required on incentive computation as under MBED, 50:50 sharing for URS power.</p> <p>4. The Discussion Paper proposes a principle at variance with the accepted principle to channelize congestion revenue to remove the cause of transmission congestion. Congestion revenue arises from a price differential between areas with restricted supply and those with surplus supply. This revenue is not supposed to be distributed as a profit to discoms located in surplus regions and having long-term PPAs but it has to be channelized for the strengthening of transmission system and for removing constraints in the transfer of power to congested areas, with a view to achieving a uniform market clearing price for the country. At present, the congestion revenue goes to Power System Development Fund. The recommendation for the distribution of congestion revenue to selected discoms may lead to a difference of opinion in the planning of transmission for future.</p>
4.	Chapter 7 – Challenges and Way Forward	<ul style="list-style-type: none"> • Challenges and Way Forward • Institutional structure and technology 	<p>1. If DISCOMs are not in position to make payment to Market Operator then the realization to all GENCOs would be lesser in proportion thus, payment security mechanism should be clearly defined to avoid lesser payment to GENCOs.</p>

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			<ol style="list-style-type: none"> <li data-bbox="1151 282 1991 639">2. As per present PPA terms, DISCOMs are required to make payment of monthly bills on due date i.e. after 30 days from receipt of invoice for the preceding month. Clarification is required whether DISCOMS will have to make payment prior to bidding as per current DAM practice in power exchange and If DISCOMs will have to make payment prior to bidding then this will increase burden on DISCOMs and ultimately on consumers. On account of such implication; DISCOM would not prefer to adapt such mechanism. <li data-bbox="1151 643 1991 807">3. Clarification is required with respect to rebate and late payment surcharge provisions under MBED mechanism visa-vise PPA terms and condition since every DISCOMs & GENCOs have different clause related to rebate and late payment surcharge. <li data-bbox="1151 810 1991 975">4. Since actual materialization of coal against the FSA will be known after the end of the month; hence, it is difficult to predict the actual cost of generation to be considered while bidding due to shortfall in coal materialization. <li data-bbox="1151 978 1991 1054">5. Clarification is required with respect to Contracted Price and its settlement in reference to Change in Law under NCDP. <li data-bbox="1151 1058 1991 1222">6. Generation from linkage coal through FSA is to be supplied to specified DISCOMs having Long Term PPA with Generator. Whether the extent policy will allow such diversion of power to other DISCOMs/Beneficiary under MBED mechanism. <li data-bbox="1151 1225 1991 1382">7. Clarification is required with respect to Change In Law due to taxes and duties, since Appropriate Commission may approve it later and it is difficult to ascertain it's impact while bidding under MBED.

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			<p>8. Copy of draft supplemental PPA is required for MBED mechanism.</p> <p>9. In case the Generator trips on account of forced outage or there is reduction in generation due to operational reasons then the procedure is not explained in regards to reduction in schedule towards Long term contract and URS sold in MBED market.</p> <p>10. The paper proposes to combine the buy and sell bids received at the two private power exchanges and make one exchange as the nodal power exchange. Alternatively, an independent agency has been proposed for operating the market clearing engine. The market clearing engine is the core technology of a power exchange; it requires careful consideration as well as investment. It has also been proposed that the clearing house for settlement of trades be separated from the existing power exchanges. The proposed institutional mechanism may spell trouble for the existing power exchanges.</p>