CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 3/SM/2024

Coram:
Shri Jishnu Barua, Chairperson
Shri Arun Goyal, Member

Date of Order: 23.05.2024

IN THE MATTER OF:

Directions by the Commission to the Power Exchanges registered under the Central Electricity Regulatory Commission (Power Market) Regulations, 2021.

ORDER

In exercise of the powers conferred under Section 66 read with Section 178 of the Electricity Act, 2003 and the National Electricity Policy, the Commission notified the Central Electricity Regulatory Commission (Power Market) Regulations, 2021 (hereinafter 'PMR 2021') on 15.02.2021, which came into force with effect from 15.08.2021. These regulations apply to the Power Exchanges, market participants other than Power Exchanges, and the OTC Market.

2. A Power Exchange has been defined as an electronic platform registered under these regulations with the objectives to facilitate transaction of electricity contracts and to ensure fair, neutral, efficient and robust price discovery. One of the key aspects of the Power Exchange operations is the designing of contracts, including the bid types available under these contracts, amongst other specifications.

3. The terms 'bid' and 'bid type' have been defined under sub-clauses (f) and (g), respectively, of clause (1) of Regulation 2 of the PMR 2021 as follows:

"Bid" means the electronic document by which a member of a Power Exchange submits price and quantity in relation to a contract, for which it seeks to make a transaction;

"Bid type" means the category of bids with distinct specifications as applicable in relation to each contract to be transacted on a Power Exchange;

4. At present, the types of bids available under the Day Ahead Market at the Power exchanges are:

a. Single Bid - specifies multiple sequences of price and quantity pairs in a portfolio manner. The quantity is assumed to vary linearly between two price pairs.

b. Block Bid - specifies one price and one quantity for a combination of continuous 15-minute time blocks. The selection criterion is the average area clearing price (ACP) for the quoted 15-minute time blocks. It is an 'all' or 'none' type.

c. Linked Bid - two different block bids can be linked as parent and child bid. The child bid is considered for selection only when the parent bid is selected.

d. Minimum Quantity Block Bid - block bids wherein partial acceptance of Block Bid is possible. Specifies one price and one quantity for a combination of continuous 15-minute time blocks along with a 'Minimum Quantity percentage' and a number of sub-bids. The minimum quantity percentage will specify the quantity up to which the block bid can be accepted, whereas the number of sub-bids will specify the size into which the remaining quantity shall be divided.

e. Profile Block Bid - Specifies one price and varying quantities for a combination of continuous 15-minute time blocks. The selection criterion shall be based on the weighted average of ACP for the quoted 15-minute time blocks. It is an 'All or None' type of order.

5. Initially, all the Power Exchanges offered only Single bid, Block bid and Linked bid (Parent-Child Bid). Later, the Indian Energy Exchange (IEX), by way of Order in Petition No. 11/RC/2019, was allowed by the Commission to offer the Minimum Quantity Bid and Profile Bid on its platform. As Hindustan Power Exchange (HPX) started operations in 2022, it offered all the above types of bids on its platform from the day of the launch of DAM on its platform. However, the Power Exchange India Ltd. (PXIL) has recently introduced the remaining bid type w.e.f. 26th April 2024 on its platform.

6. While Single bids provide granularity, Block bids are used to fulfil specific technical or commercial requirements. In the case of Single bids, the sellers have the risk of either not getting cleared in the next block or of offering a low price to get cleared to keep the unit running. However, a Block bid facilitates the continuous running of the generating units. Further, a Block bid allows a seller to provide an average price for a combination of blocks, thus enabling the seller to factor in its operational costs including start-up and shutdown costs, etc.

7. Despite being advantageous for the sellers, the Block bid has the rigidity of quoting only one quantum for a combination of continuous 15-minute time blocks and also being an 'All or None' type of order. Therefore, various variations of the Block bid, like Linked Bids, Minimum Quantity Bids and Profile Bids, have been introduced in the market over time by the Power Exchanges, with the approval of the Commission.

8. An analysis of the number of bids received for DAM at IEX for each of the bid types shows that while the buyers prefer submitting Single bids, the sellers have an equally likely preference for both Single and Block bids.

Preference of different Bid types in DAM at IEX						
Type of Bid	**Jun-23**		**Oct-23**		**Mar-24**	
	Buy Bid	**Sell Bid**	**Buy Bid**	**Sell Bid**	**Buy Bid**	**Sell Bid**
Single Bid	67%	50%	65%	49%	69%	51%
Block Bid	31%	49%	33%	51%	29%	47%

Linked Bid	2%	1%	1%	0%	0%	2%
Min. Quantity Bid	0%	0%	0%	0%	0%	0%
Profile Bid	1%	0%	1%	0%	1%	0%

9. The Power Exchanges, in accordance with the Business Rules, Rules, and Bye-Laws, stipulate the maximum number of block bids and maximum quantity per block bid from time to time, with prior approval of the Commission. The above provision was inserted into the Business Rules, Rules, and Bye-Laws of IEX as per the Commission's directions vide Order dated 9th October 2018 in Petition No. 33/RC/2017.

10. The present limit on the block bid size and the number of block bids on the three power exchanges is as below:

Specification	IEX	PXIL	HPX
Max quantity per Block Bid	100 MW	25 MW	100 MW
Max No. of Block bids	60	No restriction	60

11. With a view to providing some flexibility to the Power Exchanges to respond quickly in a dynamic market scenario, the PMR 2021 provides that the Power Exchanges may introduce new bid types or modify existing bid types conforming to the types and features of the contracts specified in the Regulations, under intimation to the Commission. However, the Power Exchanges may introduce or modify bid types only after consultation with the stakeholders and in discussion and coordination with NLDC with regard to any scheduling and delivery-related matters. Regulation 25 is reproduced as under:

> *"25.* ***Approval or Suspension of Contracts by the Commission***
>
> *(1) The Commission may, on its own or on an application made in this behalf, permit any Power Exchange to introduce new contracts as specified in clause (1) of Regulation 4 of these regulations:*
>
> *…….*
>
> *Provided further that the Power Exchanges may introduce new bid types or modify existing bid types conforming to the types and features of the*

contracts specified under Regulations 4, 5 and 6 of these regulations, after consultation with stakeholders and National Load Despatch Centre, under intimation to the Commission, along with the details of consultation with stakeholders and National Load Despatch Centre and the views of the Power Exchange

……..”

12. The current maximum bid size for block bids varies across Power Exchanges. The last revision in the maximum quantity of block-bid size at IEX took place in 2017 when IEX increased the maximum bid quantity per Block Bid from 50 MW to 100 MW, vide its Circular dated 11th April 2017. The last revision in the size at PXIL was in 2020, when PXIL, vide circular dated 18th January 2020, changed the maximum quantum to 25 MW.

13. At the time of the revision in bid size by IEX, some concerns were raised by the Grid Controller of India (formerly POSOCO) and brought to the notice of the Commission through various communications. Based on the concerns anticipated, the staff of the Commission held several rounds of discussions with Grid-India and IEX in 2017 on the associated operational issues with the increase in maximum bid quantity per Block Bid. Based on the discussion, it was decided that Grid-India should examine in detail the potential impact of such an increase in consultation with the Power Exchanges. Grid-India submitted its final report on this matter in May 2018 with the following recommendations:

i. Block bids and associated market design issues are complex and need more study/analysis. Design parameters such as liquidity, concentration in the market, etc., may be considered for making any changes.
ii. In future, formal consultation would be carried out by the Power Exchanges with NLDC and CERC in case of change.
iii. Ramping requirements in system operation must be taken care of, and any step changes should be avoided as envisaged in the Grid Code. In the future, ramping restrictions on all segments could be discussed.

iv. Power Exchanges recommended publishing information regarding producer/consumer surplus, total social welfare, total number of portfolios traded, and contribution of block bids in MCV.

v. Power Exchanges algorithm should be modelled as an optimisation problem with the objective of social welfare maximisation. This would give flexibility by adding or relaxing a few constraints.

vi. Market Surveillance report should also include block-wise or day-wise HHI (Herfindahl–Hirschman index) in addition to monthly HHI.

vii. New 'exotic bids' should be examined. For example, hydro generators may give energy on RTC/ defined time blocks and allow flexibility in the volume cleared in each time block depending upon the price (a high price would indicate higher demand to be met, and hydro optimisation will help).

14. The Commission is of the view that the bid size should be reflective of the prevalent power sector scenario. With the growth in generation capacity, technology development, increased participation in the Power Exchanges from diverse stakeholders, etc., the need for a review of the bid size is apparent.

15. In view of the emerging demand-supply scenario in the electricity sector, a number of policy and regulatory measures have been taken to ensure a reliable and secure supply, particularly in the peak demand period. One of the issues highlighted by the stakeholders, especially the generating companies in the recent past, is the maximum block bid size, which is restricted to 100 MW in the Power Exchanges. It has been pointed out that the small block bid size of 100 MW creates a problem for large power plants of, say, 800 MW capacity because they need at least 50% (400 MW) capacity to operate at their minimum turn down level. The Ministry of Power, vide its communication dated 15th May 2024 addressed to the Commission, also requested the Commission to review the block bid size limit in the wake of the high demand situation so as to enable the large generating companies to participate in the market.

16. In view of the above and considering the recommendations in Grid-India's report, the current market situation has been reviewed, as compared to the market prevalent at the time of the last revision in bid size. We note that the transactions through the Power Exchanges constitute about 8% of the total electricity generation in 2023-24; however, it has witnessed significant growth from 48 BU in 2017-18 to 110 BU in 2023-24 (till Feb'24). Moreover, there has been a noteworthy increase in the volume of sell bids in DAM, around 1.4 times, from 2017-18 to 2023-24. The average monthly sell bid volume in 2017-18 was 6 BU, whereas the same has been 8 BU in 2023-24.

17. Taking note of the above developments and to enhance the availability of electricity in the grid during high-demand months, the Commission finds merit in the proposal to increase the maximum block bid size beyond the current level of 100 MW in the Power Exchanges. However, it is equally important to examine the associated challenges of any such regulatory direction so as to protect the market integrity and system reliability & security.

18. Based on discussion with the stakeholders, including the Power Exchanges and Grid-India, and review of the operational experience of the Power Exchanges, the Commission notes that while the block bids provide flexibility to the sellers, especially the larger power plants, there are some inherent challenges as well that go with this bid type, as discussed below:

a. Paradoxical rejection of bids – In some cases, a block bid might get rejected even though it appears to be a competitive bid. This happens where the inclusion of a block bid results in a change in MCP and the average price, such that the block bid no longer justifies being included. This leads to what is termed as "Paradoxical rejection of bid." With the increase in bid size, it is apprehended that the instances of paradoxical rejection might increase, as these are "All or None" types of bids.

b. Under-utilization of Transmission – It has also been pointed out by Grid-India that the exclusion of a marginal block bid on a congested corridor

may lead to under-utilization of the corridor, the probability of which might increase further as the size of the block bid increases.

c. Reduction in Economic Surplus – In some cases, a larger block bid size might potentially lead to a reduction in the economic surplus.

19. The discussion with the stakeholders has also revealed the need for a gradual approach to enlarging the block bid size. It has been argued that thermal (coal as well as gas-based) generators are the ideal candidates for providing such flexibility to start with. In the wake of the high penetration of renewables, the probability of such thermal generators going below their minimum turndown level increases. So far as hydro generating stations are concerned, they are meant to operate during peak hours and are, in any case, fully dispatched during the high demand periods by the system operator.

20. The Commission has noted the pros and cons of enlarging the block bid size as highlighted by the stakeholders and is of the view that in pursuit of ensuring maximum generating capacity on bar, it would be prudent to create, initially for a period of six months, a facilitative framework for the thermal power plants to participate in the market so as to meet the increasing high demand, and based on the operational experience to review its continuation further.

21. Therefore, in the exercise of the powers conferred under PMR 2021, the Commission hereby directs as under:

(a) All Power Exchanges shall allow a maximum block-bid size of 400 MW in the Day-Ahead Market (DAM) for thermal generators only.

(b) The maximum block-bid size for sellers other than thermal generators and all buyers shall be 100 MW.

(c) The maximum number of block bids that a market participant can enter shall be restricted to 50.

(d) The maximum quantum of 400 MW, as stated in point (a) above, shall be applicable for all variants of Block bids, i.e., Linked Bid (Parent & Child bids combined as 400 MW), Minimum Quantity Bid, and Profile Bid.

22. The directions as contained in this Order shall remain in operation initially for a period of six months from the date of this Order. As the Block bid is in the nature of *a bid type* and the variation in size of the Block bid is in the nature of *modification of the existing bid type,* the Power Exchanges shall decide on the continuation of the Block bid size of 400 MW beyond six months after following the procedure specified in Regulation 25 of the PMR 2021, and with regard to the feedback from the Grid-India and under intimation to this Commission. Should there be a need for any direction in this regard, the Commission shall give such directions as deemed fit for the Power Exchanges to comply with beyond the said period of six months.

23. In view of the above, all the Power Exchanges are directed to make necessary changes in their software so as to accept bids as per the directions in Para 21 above, issue relevant circular(s) for the stakeholders, and submit a compliance report on the same on affidavit within two weeks from the date of issuance of the Order.

24. We also direct Grid-India to submit a report within three (3) months from the date of this Order on the operational aspects and effect of Block bid size modification on the market. The report may be prepared after seeking feedback from the Power Exchanges & market participants on the market's experience and performance with the revised bid specifications.

25. The Petition No. 3/SM/2024 is disposed of in terms of the above directions.

Sd-	Sd-
(Arun Goyal)	**(Jishnu Barua)**
Member	**Chairperson**