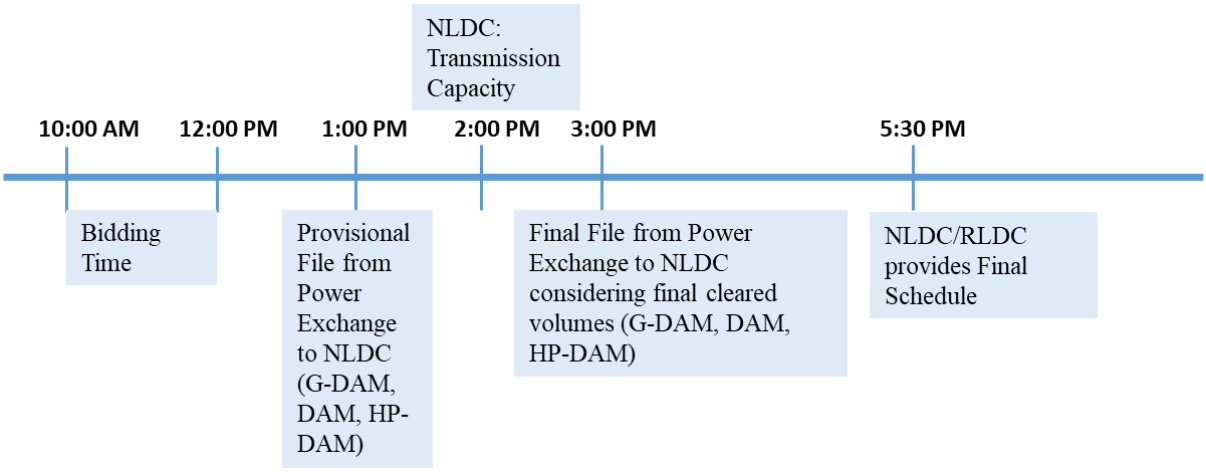
# Proposal on High Price Market Segment for Day Ahead Market (HP-DAM)

The document is proposed by Ministry of Power on 1st August, 2022 and the comments are invited till 21st August, 2022. The summary of the document is as below:

1. The issue of high price in spot market in Power Exchanges was addressed by CERC by introducing Price Cap of Rs 12/ unit in all market segments in April, 2022. The only **drawback in it was that the generators having high variable cost are unable to participate in the market.**

2. Considering the same, HP-DAM is proposed within existing I-DAM as below:
   - **Eligible Sellers**: The sellers mainly involved in this segment will be those that have **variable cost greater than the price cap of Rs. 12/unit.** These can be **gas based power plants, imported coal based power plants**, etc. **An NOC will be provided to such sellers biannually through NOAR (National Open Access Registry).**
   - **Bid Price Range**: Min: 0 paise /unit & Max: decided based on stakeholders feedback (higher than existing price cap for DAM)
   - **Market Design**: It will be operating in parallel to the existing market operations.
   - **Integrated HP-DAM**: HP-DAM operation will be analogous to G-DAM in I-DAM. The **buyers will have option to carry forward their uncleared bids** from DAM to HP-DAM. Also the buyers can directly place their bids in HP-DAM.
   - **Market Timeline**:




   **Price Discovery**: Double-Sided Closed Auction (similar to DAM, G-DAM, RTM)

3. This will enable the **high cost power plant to be available during high demand period that was not possible previously.** It **targets only the buyers who are in deficit and can afford high price payment to participate in this segment**. The other buyers will not get affected by operation of this additional segment.

The document can be accessed here.

# CER Comments

1. **Price Spike on Power Exchanges and Role of HP-DAM:** Price spikes on the power exchanges over the past few months has been a cause for worry for the regulators as well as policy markets. This, along with the fact that some of the sellers would have made significant margins above their marginal cost (MC), may seem to have justified the idea of HP-DAM. However, the fundamental economic and implementation issues create an uncertainty about its long-term impact, while it may seem to result in some short-term benefits.

   The fundamental reasons for the recent price behavior needs to be identified and addressed across the electricity supply chain, beginning with coal supply issues[1]. HP-DAM may be a temporary solution[2] that would likely alter bidding behavior as well as market outcome for DAM market segment itself. This is further explained below.

2. **Uniform Market Clearing Price and Social Surplus:** One of the key factors that perhaps led to the idea of HP-DAM is that the generators with low bids (read marginal cost) ended up garnering significant surplus (over their bid) due to uniform market clearing price. The fundamental nature of uniform market clearing price is the ability of the market to pass on price signals for investment particularly merchant capacity addition and demand response thus bringing long-term market efficiency. The surplus generated incentivises capacity addition thus avoiding/limiting future price spikes.

3. **Addressing Price Spike – Supply Chain issues, Demand Response and Dynamic Pricing:** Given the rising cost of power purchase across discoms and the financial state of electricity distribution companies, the efforts should be to minimize the overall financial impact for the discoms and the final consumers. As mentioned above, addressing coal supply issues, demand response and dynamic pricing can help address the issue of price spike.

   Note that prior to price spike, the average prices remained around Rs. 3-3.50 per unit with peak prices hovering around Rs. 7-8 /kWh at most. There was limited opportunity for high cost power to be traded on power exchanges and thus contributed little in terms of volume to the exchange traded products. The need for creating a niche market to allow participation of high cost generators is only a short-term solution. The addressing the structural problems in the electricity market design would provide a long-term solution for the same, and which would also be in the interest of the discoms as well as the consumers.

4. **Low Liquidity Situation in HP-DAM:**

[1] The editorial in the latest issues of *Regulatory Insights*, Vol 5., No. 1, Centre for Energy Regulation (CER) and *Power Chronicle*, Vol 5., No. 1, Energy Analytics Lab (EAL), highlighted these aspects.

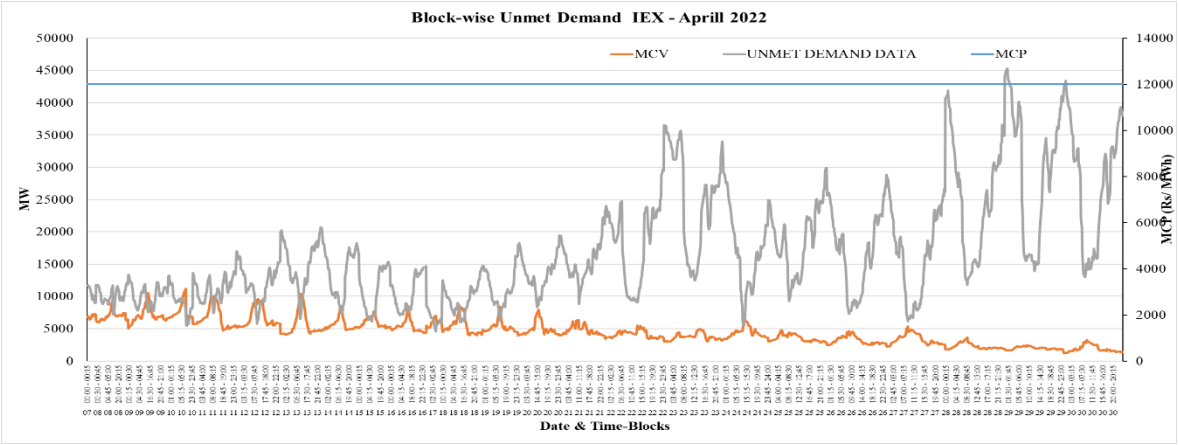
[2] Introduction of HP-DAM may perhaps be the only case of power market, wherein a 'high price market segment' is proposed to be introduced. I am not aware of such an example, though these might exist.

Market segmentation of DAM, by separating HP-DAM would lead to overall decline in liquidity especially when power shortages are minimal. In the absence of a mechanism to

Apart from the above economic anomalies, may also face liquidity concerns especially when prices would be hovering around the cut off of Rs 12 and, hence, may lead to inefficient market outcome clouded by the concerns for market concentration and market manipulation.

In case of price discovered being less than Rs. 12 in the DAM, HP-DAM would not be executed, thus influencing liquidity/volumes on HP-DAM.

5. **Pseudo Demand during Price Spike (at price cap):** In case the MCP reaches the unit price cap (earlier Rs. 20 as technical cap, or now Rs. 12 as per CERC), and if the demand bids at price caps are more than the supply bids, a pro-rate approach is adopted for allocation of available supply volume across bidders at price cap. During shortages, the buyers knowing this mechanism would likely bid for higher volume than required so that they have a 'better' pro-rata share of MCV. This inflates the notion of 'unsatisfied' demand when market price touches price cap, and hence should not be construed to be that justifying better liquidity in HP-DAM. Such a behavior is generally observed when price cap is hit across multiple blocks over multiple days (See Fig below, which presents data only for the blocks hitting price cap).




6. **HP-DAM – A Dynamic Definition:** The key parameter defining HP-DAM is the price limit of Rs. 12/kWh (which may or may not be limited to the price cap set by the CERC).

   The definition of the market segment HP-DAM would remain dynamic as fuel supply situation (read, Gas price) rides over the international geo-political developments. In case the market price of gas falls significantly, HP-DAM would need to be redefined by lowering the price limit of Rs. 12/kWh. Six month is too long a period for the NOC for participation in HP-DAM. Given the dynamic international scenario (now as well as in future), the frequency for NOC approval may need to be a shorter one (perhaps in a gap on a month if required by the generator).

7. **HP-DAM Generators' participation in DAM at bids lower than the cut-off limit:** Will generators eligible to participate in HP-DAM be barred from

participation DAM with lower bids than Rs. 12/kWh? Such a situation may arise when variable cost of the generators hovers around Rs. 12/kWh and technical constraints may let it accept even lower rate for certain blocks of the day. The proposed design would exclude such circumstances.
If the eligibility of participation for generators is to be

8. **Market for Flexibility Services and Role of Gas Based Generators:** The price of Rs. 12/kWh has resulted in exclusion of high variable cost generators from the power exchanges. Given the high gas prices, participation of such generators cannot be expected.
Higher penetration of variable renewable energy in the power system necessitates need for flexible resources. Gas based power generation, storage technologies, demand response etc can help bring this flexibility to the grid. Development of a market for such flexible resources as fast response ancillary services market is a more appropriate market platform. This also allows socialization of such high cost resources if they can economically justify their value to the grid in terms of reduction in deviations and improvement in economics of overall cost of power procurement.

9. **Spill-over Effect Leading to Higher MCP in DAM:** The proposed mechanism provides an option to the buyers in DAM to allow auto rollover to the HP-DAM. Since a buyer would not be sure of clearing its demand in DAM, it would tend to bid more than Rs. 12/kWh to allow for 'uncleared' bids to be rolled over to HP-DAM. In case a consumer chooses to bid below Rs. 12/kWh, there are no bids to be carried over to HP-DAM.

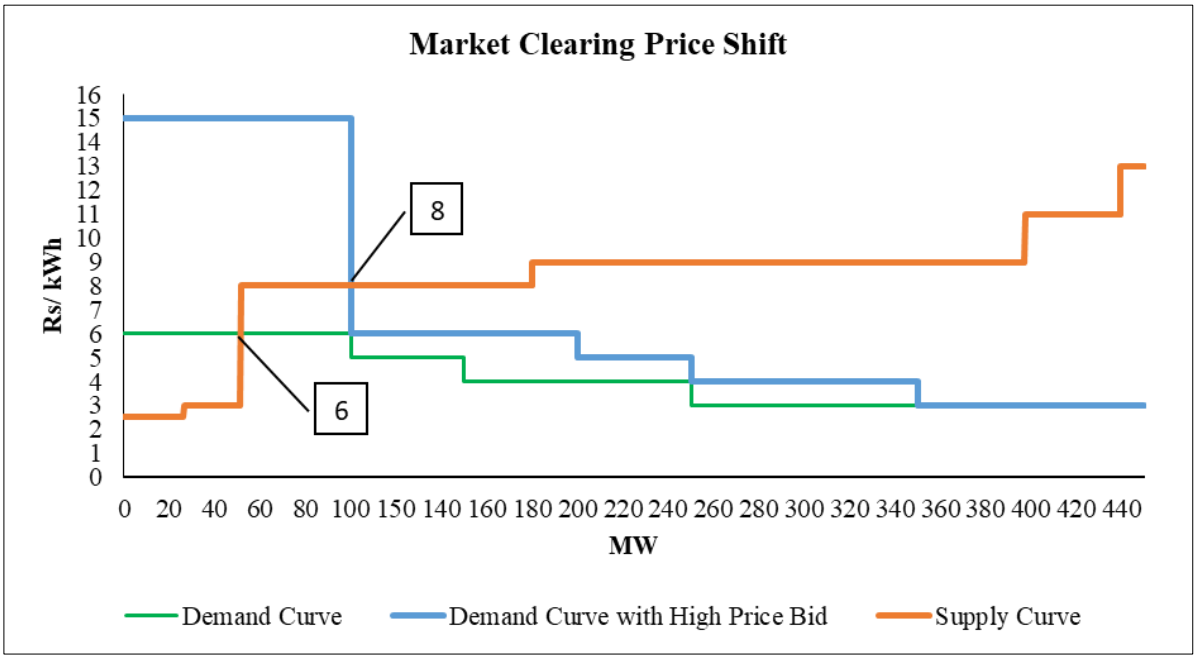



**Figure: Higher MCP in DAM after introduction of HP-DAM, with auto-rollover of buy bids from DAM**

Compare this with respect to a case wherein a buyer would participate in DAM (in the absence of HP-DAM). Knowing that the market has a cap of Rs. 12/kWh, a buyer

would have no incentive to bid over this limit[3]. With the emergence of HP-DAM, to allow for auto-roll over from DAM to HP-DAM, a buyer would have to bid over and above Rs. 12/kWh. **This would raise the market clearing price (MCP) in DAM after the introduction of HP-DAM.** This is explained with the help of following representative diagram.

If design of HP-DAM provides for a choice of a premium for buy bids while a bid is carried forward from DAM to the HP-DAM segment, the above situation would not arise. **It is suggested that while rolling over of buy bids from DAM to HP-DAM, the buyer should have a choice of a premium while participating in the later (similar to I-DAM/G-DAM market).** The premium would have to be sufficient one so that the rollover bid crosses the Rs. 12/kWh limit.

10. **Eligibility of Sellers to Participate:** By design, participation criteria for generators is linked to the limit of Rs. 12/kWh. The eligibility for generators may be dynamic, especially for generators buying gas through short-term contract including that on the gas exchange with a resultant variable cost (fuel) to be around Rs. 12/kWh. A little short of it, they become ineligible to participate in HP-DAM.

    How would participation of buyers under PPA with gas-based generators be evaluated? Such buyers (read discoms) would like to offload their 'excess' and 'expensive' power on HP-DAM. What would be the eligibility criteria for such discoms to offload their power on HP-DAM? Since DC of such plants may vary on day-to-day basis, will there be a dynamic assessment of their eligibility? In its absence, a discom may profit by selling higher capacity at HP-DAM and compensate by 'demand management', thus effectively displacing a low cost power and 'selling' the same on HP-DAM.

11. **Role of SERCs:** Given that price discovered in HP-DAM, due to its design, would always be higher than Rs. 12/kWh, SERCs may show conservatism in allowing participation in HP-DAM and instead mandate the discoms to take other measures to obviate the need for HP-DAM as far as feasible. This may reduce participation in HP-DAM.
    Given the poor financial liquidity with discoms, they would be required to provide advance funds to exchange in case they wish to consider 'roll-over' of their bids to HP-DAM. This would place persistent burden on discoms willing to participate in HP-DAM, especially when demand-supply situation may take the MCP near Rs. 12/kWh. Given the public ownership structure and the principle –agent problem, SERCs would have to put checks and balances to ensure that more cost effective options are implemented and exercised by the discoms.

12. **Buyers would not place a Direct Bid on HP-DAM:** Knowing that a buyer may have lower MCP in the DAM segment and it has the option to rollover to HP-DAM, a buyer should not be directly bidding into HP-DAM. Otherwise it faces the risk of buying higher price power in HP-DAM whereas it would have placed a bid in DAM

[3] Since bids at Rs. 12/kWh as well as those above it are considered in a similar manner while making pro-rata 'clearing' for the buy volume, there is no incentive currently to bid over Rs. 12/kWh.

with chances of getting clearing at an MCP lower than Rs. 12/kWh, else its bid would have been rolled over to HP-DAM

The statement "*Buyers can also directly place the bids in HP-DAM*" should thus be omitted.

13. **Minimum zero price Bid in HP-DAM:** As proposed, the provision for zero price bid in HP-DAM may not be feasible. In case a bidder (even though having a VC above Rs. 12/kWh) decides to place a bid lower than its VC, it would be willing so in the DAM segment as well. In that it case, it would always get cleared in DAM and may not have enough volume left to be placed for HP-DAM. The provision for the same be omitted.