CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 13/SM/2026 (Suo-Motu)

Coram:
Shri Jishnu Barua, Chairperson
Shri Ramesh Babu V, Member
Shri Harish Dudani, Member
Shri Ravinder Singh Dhillon, Member

Date of Order: 28th October, 2026

IN THE MATTER OF:

Inclusion of the Pumped Storage Plants (PSPs) in the eligibility list for participation in the High Price Day Ahead Market (HPDAM).

ORDER

The High Price Day Ahead Market (HP-DAM) segment was introduced within the Integrated Day Ahead Market (I-DAM) framework to provide a market avenue for generating stations with high generation costs, for which the prevailing price ceiling in the DAM could constrain participation in the power market. In this context, vide Orders dated 16.02.2023 (Petition No. 359/MP/2022), 11.04.2023 (Petition No. 14/MP/2023) and 24.07.2023 (Petition No. 122/MP/2023), the Commission permitted the Power Exchanges to introduce HP-DAM with the following categories of generating stations to participate in the HP-DAM Segment:

(i) Gas-based generating stations using imported RLNG and Naphtha
(ii) Imported coal-based generating stations using only imported coal
(iii) Battery Energy Storage Systems (BESS).

2. The Commission further directed the National Load Despatch Centre (NLDC) vide Order in Petition No. 359/MP/2022 and in Petition No.14/MP/2023, to compile a list of all the eligible HP-DAM sellers along with recommendations for inclusion of any

other resource in the HP-DAM eligibility list. The relevant extract of the Order is as under:

> "*We also direct NLDC to compile a list of all such eligible sellers and publish in their website under intimation to the Commission. NLDC is also directed to submit a quarterly report with recommendations, if any, for inclusion of any resource or generating station with any specific fuel source, in the eligibility list for participation in HP-DAM.*"

3. Further, the Ministry of Power (MoP), vide letter dated 10.04.2023, notified the Guidelines to promote development of Pumped Storage Projects (PSPs), which, inter alia, provide for participation of PSPs in the HP-DAM segment as under:

> *"3.4…..(iii) PSPs and other storage projects shall be allowed to participate in all market segments of the power exchange, including the high price segment of the Day Ahead Market (HP-DAM) so that they can take suitable advantage of the price differential between Peak and Off-Peak tariffs."*

4. NLDC, vide letters dated 02.07.2026 and 24.07.2026, recommended to the Commission for inclusion of Pumped Storage Plants (PSPs) in the eligibility list for participation in HP-DAM. Subsequently, considering the critical role of PSPs in providing long-duration energy storage, peak power support, and grid balancing services, MoP, vide letter dated 30.07.2026, suggested that the Commission "*consider including PSPs as eligible generating stations for participation in the HP-DAM under the applicable regulatory framework"*.

5. In support of the recommendation, NLDC submitted an analysis of the present PSP capacity, HP-DAM liquidity, levelized tariff of PSPs and the opportunity available in the DAM. The salient findings of the aforesaid analysis, relevant for consideration for inclusion of PSPs in HP-DAM, are as under:

(i) As per the report published by CEA in January 2026 on "*Roadmap to 100 GW of Hydro Pumped Storage Projects (PSPs) by 2035-36*", the operational PSP capacity in India stands at 7,425.6 MW. Of the total operational capacity, 4845.6 MW comprises on-stream capacity and 2580 MW comprises off-stream capacity. NLDC submitted that presently, the operational PSPs are almost fully

tied up, and the availability of merchant capacity from these operational ISTS-connected PSPs is limited.

(ii) New projects aggregating 15,870 MW are under construction, and the estimated PSP potential in the country is 2,90,195.6 MW, which indicates significant scope for development of PSP capacity in the future. The details of the operational and future PSP Capacity in India are as follows:

Table 1: **Operational and Future PSP capacity in India**

Description	**On Stream PSP (Generating PSPs)**		**Off Stream PSP (Storage PSPs)**		**Total PSP (On Stream + Off Stream)**	
	No of Projects	Capacity (MW)	No of Projects	Capacity (MW)	No of Projects	Capacity (MW)
Potential	63	56926	201	233270	264	290196
In Operation	8	4845.6	2	2580	10	7425.6
Under Construction	3	3850	8	12020	11	15870
DPR Concurred by CEA/Appraised by CEA	1	1000	4	5580	5	6580
Under Examination	1	640	1	1560	2	2200
Under S & I	2	1500	63	91850	65	93350

(Source: https://cea.nic.in/wp-content/uploads/hpi/2026/04/PSP_Development.pdf)

(iii) It was highlighted that participation of PSPs having merchant capacity in HP-DAM may provide an additional market avenue for such PSPs to undertake energy arbitrage during periods of high price discovery.

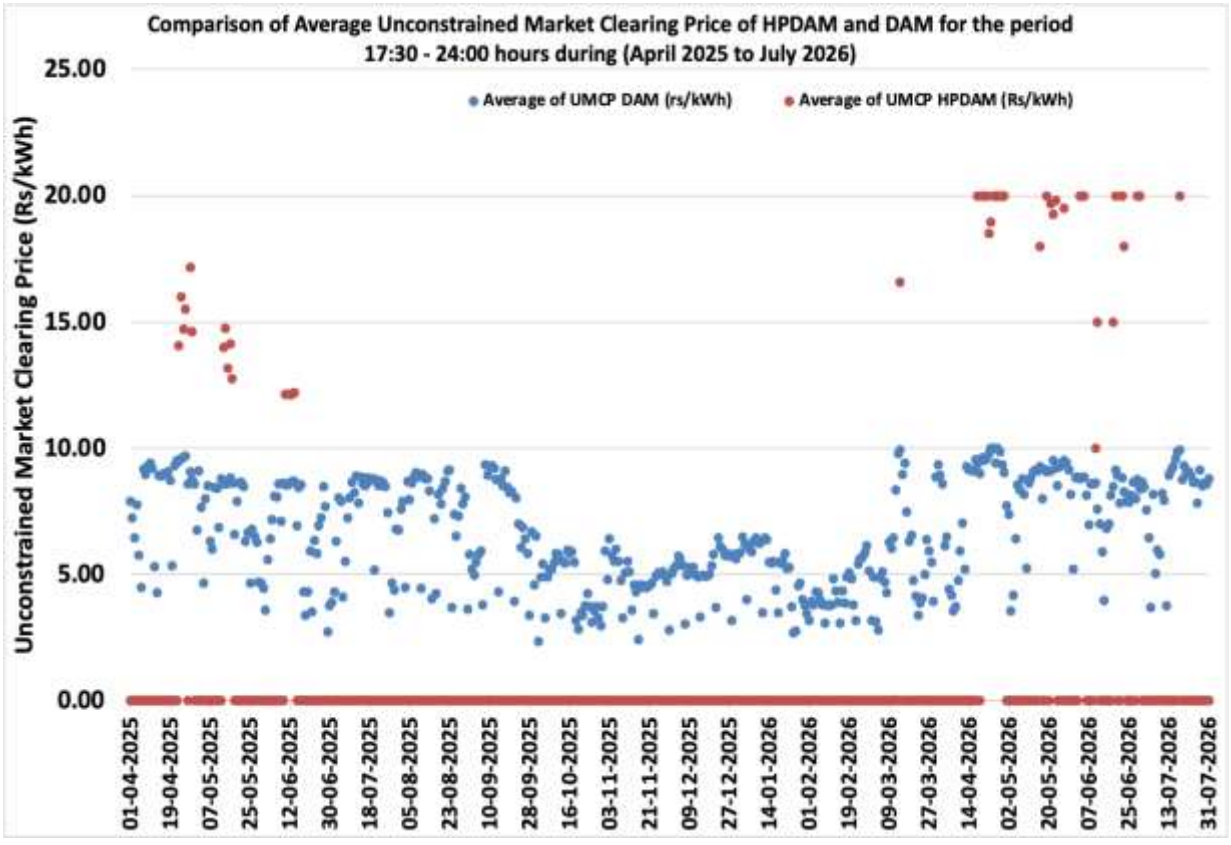
(iv) NLDC also examined the prevailing liquidity and market-clearing outcomes in HP-DAM from April 2025 to July 2026. The HP-DAM liquidity outcomes show that market clearing occurred on 47 days (9.65% of the analysis period) and 965-time blocks (2.06% during the analysis period), indicating that HP-DAM currently constitutes a relatively limited market segment in terms of trading activity and liquidity. Nevertheless, HP-DAM provides an additional avenue for

market participation during periods of high price discovery and scarcity conditions.

(v) While HP-DAM has demonstrated higher market clearing prices relative to DAM during certain intervals, actual revenue realisation for PSPs would depend upon both the discovered price and the volume successfully cleared in the market. Therefore, the commercial benefits of participating in HP-DAM may vary with prevailing market conditions and liquidity levels.

(vi) Further, Fig. 1 illustrates the average Unconstrained Market Clearing Price (UMCP) in the HP-DAM and DAM segments during the peak-demand period from April 2025 to July 2026. The analysis indicated that HP-DAM recorded a higher price discovery than DAM during certain periods, though the segment continued to suffer from low liquidity and a limited number of market-clearing instances.

Fig. 1: Comparison of Average UMCP of HPDAM and DAM during April 2025 to July 2026



(vii) Specifically, the DAM price exceeded ₹5/kWh on 322 days, representing approximately 66.12% of the days during the analysis period. While DAM remains the dominant market segment in terms of liquidity and volume, HP-DAM offers an opportunity to participate during high-price conditions.

(viii) Further, the economic viability of PSP participation was also examined by NLDC with reference to the levelized cost/tariff of PSPs discovered or approved recently. As per the analysis, the levelized cost of Pumped Storage Plants (PSPs) is estimated to range from approximately ₹3.3 to ₹4.98 per unit towards the levelized fixed cost component, while the effective landed tariff, inclusive of pumping costs, may extend up to ₹8.92 per unit, depending upon project-specific characteristics and operating assumptions. The list of levelized tariffs for PSPs is as follows:

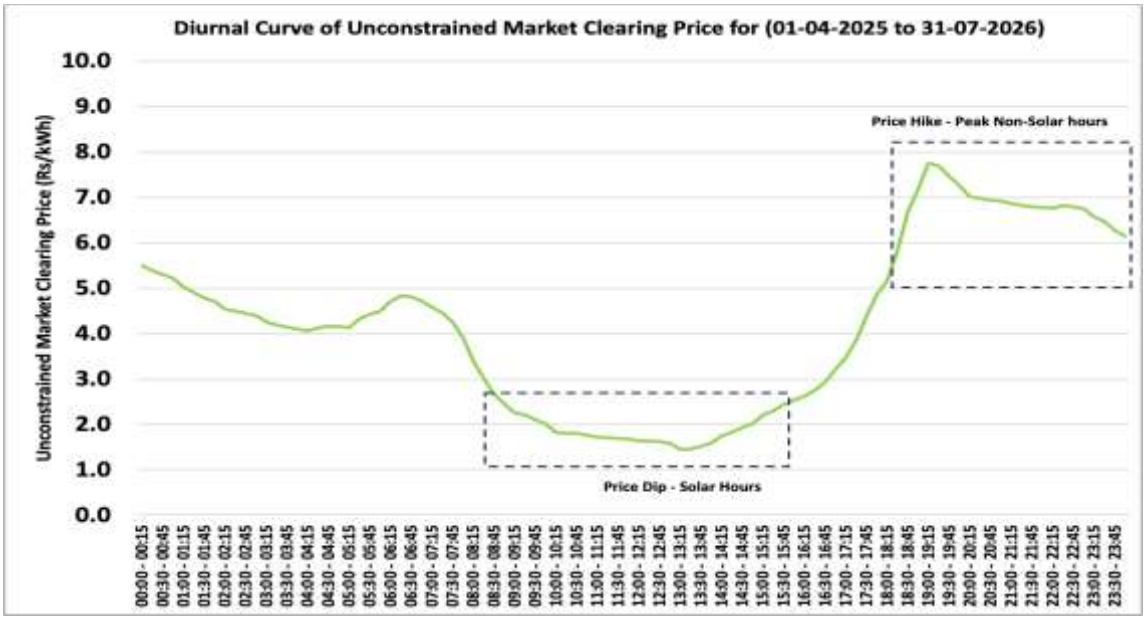
Table 2: Levelized tariff for PSPs

S.no.	Description	Levelized Fixed Cost Tariff (A)	Pumping Cost (B)	Effective landed tariff/levelized cost including pumping C = A+B
1	The rate of sale of power of Purulia Pumped Storage for the year 2020-21 as approved by WBERC as mentioned in the executive summary report published by CEA	-	-	₹6.89 per unit
2	Assam Electricity Regulatory Commission, in the order in Petition No. 17/2025, has approved the tariff discovered through competitive bidding for APDCL's Pumped Hydro Storage Power Procurement Agreement (PHSPPA)	₹3.298 per unit	₹1.89 per unit (09:30 – 15:30 hours average price in DAM)	₹5.19 per unit
3	Landed tariff for PSPs, considering a capital cost of ₹6.5 crore/MW and a 16.5% return on equity, as estimated in the Forum of Regulators' report "Accelerating the Development of Hydropower, Particularly Pumped Storage for Grid Stability in India" (March 2025)	₹4.98 per unit	₹3.94 per unit	₹8.92 per unit

4	The estimated levelized cost of generation for the Kurukutti Pumped Storage Hydro Plant, as reported[5] in "Pumped Storage Plants – Essential for India's Transition" published by The Energy and Resources Institute (TERI) in November 2023.	₹4.85 per unit	₹3.0 per unit	₹7.85 per unit
5	The tariff discovered for Greenko's 500 MW/3,000 MWh standalone storage project awarded by NTPC Renewable Energy Ltd. (NTPC REL) in December 2022, with the effective storage cost estimated under a two charge-discharge cycle operation as reported in "Pumped Storage Plants – Essential for India's Transition" published by The Energy and Resources Institute (TERI) in November 2023.	₹4.80 per unit (Single Cycle)	₹1.89 per unit (09:30 – 15:30 hours average price in DAM)	₹6.69 per unit

(ix) NLDC also analysed the price differential between solar and evening peak hours in the DAM to assess the arbitrage opportunity available to PSPs. The unconstrained market-clearing prices in the DAM during April 2025 - July 2026 showed a significant differential between solar hours, averaging around ₹2.2 per unit, and evening peak hours, averaging approximately ₹6.57 per unit, creating an arbitrage opportunity for PSP operation with a margin of about ₹4.37 per unit. The arbitrage analysis of the Day Ahead Market is depicted as follows:

Fig 2: Diurnal pattern of DAM UMPC during April 2025-July 2026



6. Based on the recommendation and analysis submitted by NLDC, the Commission is of the prima facie view that, under the prevailing market conditions, the opportunity available in the present scenario (through the DAM alone) may not be sufficient for PSPs. We are of the opinion that PSP participation in the HP-DAM would provide it with an opportunity to access periods of higher demand, improving the commercial viability of such projects. It would also facilitate greater utilisation of PSPs as flexible storage resources during periods of constrained supply, thereby supporting system flexibility. In view of the growing operational and under-construction capacity of PSPs and the need for flexible reserves like PSPs, the Commission is of the view that PSPs may be permitted to participate in the existing HP-DAM segment.

7. In view of the above, the Commission proposes the inclusion of PSPs as an eligible category of generating stations for participation in the existing HP-DAM segment on Power Exchanges. Accordingly, the Commission proposes to initiate suo motu proceedings on the aforesaid proposal and hear the parties in accordance with Regulation 56 of the Conduct of Business Regulations, 2023, for which a public notice is being issued. Meanwhile, the parties are directed to file their written submissions within 15 days from the date of this order.

Sd./-	**Sd./-**	**Sd./-**	**Sd./-**
Ravinder Singh Dhillon	**Harish Dudani**	**Ramesh Babu. V**	**Jishnu Barua**
Member	**Member**	**Member**	**Chairperson**