एनएचपीसी लिमिटेड
(भारत सरकार का एक नवरत्न उद्यम)
NHPC Limited
(A Government of India Navratna Enterprise)

CIN: L40101HR1975GOI032564

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संख्या: एनएच/वाणिज्यिक/सीईआरसी/2026/505 दिनांक: 26.05.2026

सचिव
केंद्रीय विद्युत विनियामक आयोग
7वीं मंजिल, टॉवर-बी, वर्ल्ड ट्रेड सेंटर
ब्लॉक-एफ, नौरोजी नगर, सफदरजंग एन्क्लेव,
नई दिल्ली – 110029

विषय: "भारत में विद्युत हेतु क्षमता बाजार (Capacity Market for Electricity in India)" पर स्टाफ पेपर के संबंध में NHPC की टिप्पणियाँ।

संदर्भ: CERC लोक सूचना संख्या RA-14027(12)/1/2026-CERC दिनांक 29.04.2026।

महोदय,

उपरोक्त विषय पर कृपया संलग्न पत्र प्राप्त करे।

धन्यवाद।

संलग्न: यथोपरि।

भवदीय,

(मुकेश मीणा)
महाप्रबंधक (वाणिज्यिक)

एनएचपीसी लिमिटेड
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No. NH/Commercial/CERC/2026/505 **Date: 26.05.2026**

The Secretary
Central Electricity Regulatory Commission,
7th Floor, Tower-B, World Trade Centre
Block-F, Nauroji Nagar, Safdarjung Enclave,
New Delhi- 110 029

Sub.: Comments of NHPC on Staff Paper on "Capacity Market for Electricity in India".

Ref.: CERC Public Notice No RA-14027(12)/1/2026-CERC dated 29.04.2026

Sir

In reference to above public notice dated 29.04.2026, the comments / suggestions of NHPC on Staff Paper on "Capacity Market for Electricity in India" are enclosed for your kind consideration please.

Thanking You,

Encl.: As above

Yours Sincerely,

(Mukesh Meena)
General Manager (Comml.)

COMMENTS OF NHPC ON STAFF PAPER ON CAPACITY MARKET FOR ELECTRICITY IN INDIA

CERC has come up with a staff paper on Capacity market for Electricity in India. The paper proposes to introduce an additional capacity market alongside the existing energy market. The paper highlights that India's current capacity contracting model is based on long-term PPAs with a two-part tariff structure: (i) fixed/capacity charges recovered based on declared availability, and (ii) variable/energy charges recovered based on drawl schedules of the buying DISCOM. The staff paper proposes capacity market designs that decouple scheduling/ dispatch from the PPA and index them to energy market outcomes.

In India, Resource Adequacy (RA) framework requires DISCOMs to plan and procure generation capacity to meet demand at all times reliably. This approach will remain decentralized, with the DISCOMs responsible for the least-cost-optimal procurement of capacity.

The staff paper discusses the below three alternatives in detail –

- **RA Obligation Capacity Market**: Whether capacity procurement should shift from average availability-based payments to mandatory availability during peak system need, with market-linked full cost recovery.
- **Reserve Capacity Market**: Whether reserves and ancillary services should be procured separately and in advance, given current shortages.
- **Secondary Short term Capacity Market**: Whether a short-term secondary capacity market should be introduced to complement the existing energy market.

The paper discussed various options under these markets and auction design for these options. The comments of NHPC on various proposed Capacity Markets are as under:

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1. **RA Obligation Capacity Market**

   a) **Residual RA Obligation Capacity Market with bidding on Total Charges**

   Hon'ble Commission has rolled out three options for RA Obligation Capacity Market viz. i) auction based on capacity charge for meeting RA Obligation, ii) auction based on total cost for meeting RA Obligation and iii) central auction based on capacity charge for meeting Residual RA Obligation. **It is proposed that a 4th option can also be looked by Hon'ble Commission where central auction is done on the basis of total charges for meeting Residual RA Obligation. This option shall ensure revenue visibility for the capacity holders and can invite more participation in the auction.**

   b) **Net-CONE principle should be applied resource-specifically rather than using a single technology-agnostic benchmark**

   Under existing PPAs, hydro generators recover the full capacity/fixed charge based on declared availability, irrespective of actual scheduling by the DISCOM. The proposed capacity market framework (Options 1 and 3) replaces this with a market-clearing price (MCP) discovered through competitive auctions on a Net-CONE basis. For high-cost hydro projects (e.g., upper Himalayan projects with capital costs of ₹12–15 crore/MW), the capacity charge discovered in the capacity market may be lower than the actual fixed-cost entitlement, leading to under-recovery.

   Therefore, it is proposed that if Hon'ble Commission proceeds either with Option 1 and 3, **a separate capacity pricing band should be established for hydropower (e.g. separate peak / off-peak capacity market, HPO capacity market), reflecting the actual levelised cost of hydro capacity (which is typically higher than other plant Net-CONE due to higher capital costs and longer gestation). The Net-CONE principle should be applied resource-specifically rather than using a single technology-agnostic benchmark. This shall also be in line with the different consumption obligation targets specified by Ministry of Power for different renewable technologies.**

Aman Maheshwari

c) **Contract for Difference (CfD) agreements**

The staff paper in Option 2 provides for meeting the obligation requirement by DISCOMs by inviting bids based on total charges (capacity charges and energy charges). This option provides the much-needed financial viability to the generating companies. Capacity contract under Option 2 can ensure full recovery of cost, as bilateral Contract for Difference (CfD) agreement outside the market can be signed between the DISCOM and generator for settlement of difference between the MCP and the contracted price discovered in the market.

d) **Long term Tenure of at least 15 years for Residual RA Obligation Capacity Market**

Residual RA Obligation Capacity Market is best suited for Indian Power System Scenario, where the buying entities ensure their resource adequacy and centralized auction can be carried by central agency for residual obligation capacity market. This option on one hand provides the financial visibility to the investors of generating projects as they have secured PPAs with secured revenue which is not dependent on market scenarios and on the other hand, the central auction takes care of any shortfall in the resource adequacy of DISCOMs.

However, in Residual RA Obligation Capacity Market, it has been proposed that contract period could be for a period of 10-15 years. **It is proposed that the contract period should be at least for 15 years, as the same shall take care of the loan repayment period, after which the Annual Fixed Cost tends to reduce.**

e) **Escalation of Capacity Charges on annual basis**

The capacity charges are bid by the capacity holders considering the present market and economic conditions. However, considering the changing geo-political scenarios, it is proposed that the capacity charges may be indexed to the Wholesale Price Index (WPI) or the actual operation and maintenance cost

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escalation as determined by CERC, to protect generators from inflationary erosion of capacity revenues over the contract term.

2. Reserve Capacity Market

Mandatory Schedule and Dispatch of Hydro power plants

Hydro generators with reservoir-based or pump storage capacity which can be held on standby and dispatched at short notice are natural candidates for SRAS and TRAS reserve markets. The advance annual procurement of reserves under the Reserve Capacity Market can help tie up otherwise untied hydro capacity for reserve/ancillary services at a discovered capacity charge, supplemented by dispatch-linked energy/compensation charges i.e. Scenario 1 when the capacity requisitioned by NLDC is scheduled and dispatched.

In case of Scenario 2, when the capacity is requisitioned by NLDC, scheduled but not dispatched, the capacity providers are paid 'commitment charges/ holding charges' which is the opportunity cost. In case of hydro generating stations, if the capacity is not discharged especially during monsoon season, it can result in spillage of water. **Therefore, it is proposed that priority may be given to hydrogenating station by devising a certain factor for dispatch priority somewhat similar in nature to Custom Participation Factor as defined in CERC Ancillary Services Regulations 2022.**

In case of Scenario 3, when the capacity is not requisitioned by NLDC, the capacity provider can sell the power in the energy market, where the MCP can be above or below the Energy Charge Rate of the generating station. **Therefore, it is proposed that annual compensation may be provided to the generating station if the average rate realized through market is less than 5% of the energy charge rate to protect the interest of capacity holders.**

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3. **Secondary Short-Term Capacity Market (for existing capacities)**

   a) **Recovery of energy charges through Contract for Difference under option 2**

   In option 2, two-part bids for Capacity Charge and Energy Charge have been proposed. Further, the contracted buyers have the first right to schedule after which the capacity providers can sell the power into energy market. The capacity buyer in this case shall provide the capacity charges and the capacity provider can recover energy charges through MCP. However, in the proposed option there is no provision for adjustment of MCP with auctioned energy charge through bilateral contract for difference agreement as in Option2 of RA Obligation Capacity Market. **Therefore, it is proposed that a provision may be provided under Option 2 where the generator and DISCOM shall undertake a bilateral contract settlement outside the market based on the difference between the MCP and contracted priced (capacity charge + energy charge) discovered in the bid.**

   b) **Floor Price Mechanism**

   For the short-term capacity market, a technology-specific floor price should be set for hydro capacity to prevent dumping of cheap thermal/RE capacity from displacing hydro at below-cost prices. **A floor price indexed to hydro normative fixed costs would ensure high-tariff untied hydro can also participate meaningfully.**

4. **Common comment for all three market designs**

   Mandatory Participation during Stress Hours

   All capacity market options impose an obligation on generators to bid as price takers during NLDC-notified peak/stress hours. Failure to clear during these hours attracts a penalty of 1.5× the discovered capacity charge. Hydro generators, particularly run-of-river projects may face unavoidable non-availability due to various factors such as silt flushing, low discharge especially during lean season or during annual maintenance. During these shutdowns, the

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hydro generator may be asked to participate when grid stress is highest, exposing them to significant penalty risk. Therefore, following is proposed

a) **Hydrological Force Majeure Exemption**

The penalty provision for non-participation during stress hours should include an explicit carve-out for hydrological force majeure. Generators should be required to notify NLDC in advance of expected lean-season unavailability or silt flushing and such pre-notified unavailability should not attract the 1.5x penalty. A certification mechanism through CWC /NHPC hydrology teams can be used for verification.

b) **Seasonal Availability Indexing of Capacity Obligation**

The capacity obligation during stress hours should be adjusted for hydro generators based on seasonal water availability indices published by the Central Water Commission (CWC). Hydro generators should be exempted from the full capacity obligation during documented lean hydrological periods or during silt flushing.

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