ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

Vidyut Niyantrana Bhavan, Adjacent to 220/132/33 kV AP Carbides SS,
Dinnedevarapadu Road, Kurnool-518002, Andhra Pradesh

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MONDAY, THE SIXTEENTH DAY OF MARCH
TWO THOUSAND AND TWENTY SIX

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Present

Sri P.V.R.Reddy,
Member & Chairman i/c

O.P.No.65 of 2025

In the matter of granting approval for the Battery Energy Storage Sale Agreement (BESSA), the associated Battery Energy Storage Purchase Agreement (BESPA) for procurement of 500 MW/1000 MWh BESS capacity, and for the adoption of tariff determined under section 63 of the Electricity Act, 2003 on long term basis for a period of 12 years, in accordance with the APERC Conduct of Business Regulations 1 of 1999, the AP Electricity Reforms Act, 1998 and Sections 62, 63 and 86 of the Electricity Act, 2003.

Between

1. **Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL)**
2. **Southern Power Distribution Company of Andhra Pradesh Limited (APSPDCL)**
3. **Andhra Pradesh Central Power Distribution Corporation Limited (APCPDCL)**

... Petitioners

And

National Hydel Power Corporation (NHPC) Limited

... **Respondent**

The Original Petition has come up for final hearing on 05.02.2026 in the presence of Sri Ch. Babu Rao, State Secretariat Member, CPI (M); Sri M.Venugopala Rao, Senior Journalist; Sri Tabrez Malawat, Advocate on behalf

of ACME Solar Holding Limited; Sri A.V.L.K. Jagannadha Sarma, DGM/APPCC; Sri K. Linga Murthy, CGM/Projects/APCPDCL; Smt. P.Jyostna Rani, DGM/ Regulatory Affairs, representing APTRANSCO; Sri.Mukesh Negi, DGM/Commercial, representing NHPC Limited (hereinafter referred to as NHPC); Sri G.V. Brahmananda Rao, counsel representing Sri. P. Shiva Rao, learned counsel for the Petitioners (herein after also referred to as APDISCOMs or the DISCOMs). After hearing all the parties and after carefully considering the material available on record, the Commission passes the following:

ORDER

1. APCPDCL, on behalf of all DISCOMs, filed the present Petition on 01.10.2025 requesting the Commission to grant approval for Battery Energy Storage Sale Agreement (BESSA) dated 10.07.2025, and associated Battery Energy Storage Purchase Agreement (BESPA) for procurement of 500 MW/1000 MWh BESS capacity, and for adoption of tariff determined under Section 63 of the Electricity Act, 2003 on long term basis for a period of 12 years, in accordance with APERC Conduct of Business Regulations 1 of 1999, AP Electricity Reforms Act, 1998 and Sections 62,63 and 86 of Electricity Act, 2003. The Commission admitted the Petition on 14.10.2025, and numbered it as O.P. No. 65 of 2025.

2. The Commission posted Public Notices on its website on 27.11.2025 and 12.01.2026, along with copies of the Petition and the related material, inviting views/objections/suggestions, if any, from interested persons and stakeholders, to be submitted to the Secretary/APERC. In response to the Commission's Public Notices, 4 Nos of views/objections/suggestions were received by the Commission. The Commission conducted a public hearing

on the Petition at 11:00 AM on 05.02.2026, in the APERC Court Hall in Kurnool, with options for both in-person and online participation.

Background:

3. APCPDCL, acting on behalf of all DISCOMs and vide the letter dated 29.03.2025, requested the Commission's approval for the procurement of power from a 500 MW/1000 MWh Battery Energy Storage System (BESS) project. The key details are as follows:

   A. The proposed BESS project forms part of a Central Government scheme, with NHPC appointed as the implementing agency.

   B. The scheme provides Viability Gap Funding (VGF) up to the lower of: (i) 30% of the capital cost, or (ii) Rs. 27 lakh per MWh.

   C. NHPC has already issued a Request for Selection (RfS) for the 500 MW/1000 MWh BESS capacity, and the bidder selection process is underway.

   D. APTRANSCO has identified the following three substations as suitable locations for the BESS installation:

      i. 225 MW/450 MWh at 400 kV Jammalamadugu Substation

      ii. 225 MW/450 MWh at 400 kV Ghani Substation

      iii. 50 MW/100 MWh at 220 kV Kuppam Substation

   E. APDISCOMs have given in-principle consent to arrange the required input power for charging this BESS capacity.

4. The Commission, vide the letter dated 09.04.2025, granted in-principle approval to the DISCOMs' proposal based on the following key considerations:

A. Alignment with the Government of India and the Government of Andhra Pradesh's initiatives to develop energy storage solutions to enable hassle-free integration of renewable energy.

B. The opportunity to secure Viability Gap Funding (VGF) from the Central Government, which could cover up to 30% of the capital cost and deliver significant tariff reductions for storage projects.

C. Consistency with the Commission's own Resource Plan Order dated 27.06.2024 (covering the 5th and 6th control periods), which had recommended that DISCOMs explore contracting BESS to address intra-day banking requirements—specifically, to manage surplus power during solar peak hours and shortages during morning and evening peak periods.

5. In the letter dated 26.06.2025, APCPDCL, on behalf of all DISCOMs, submitted the following information:

A. The NHPC issued a tender on 14.02.2025 to select BESS developers through Tariff-Based Competitive Bidding (TBCB) to establish a 500 MW/1000 MWh InSTS-connected standalone BESS in Andhra Pradesh.

B. The NHPC conducted an e-Reverse Auction (e-RA) on 24.06.2025, resulting in the following shortlisted L1 (lowest) developers for the three project locations:

i. Jammalamadugu substation: Patel Infrastructure Limited – 225 MW/450 MWh at Rs. 2,08,000 per MW per month.

ii. Kuppam substation: ACME Solar Holdings Limited – 50 MW/100 MWh at Rs. 2,10,000 per MW per month.

iii. Ghani substation: ACME Solar Holdings Limited – 225 MW/450 MWh at Rs. 2,22,000 per MW per month.

C. APTRANSCO has committed to developing the necessary transmission infrastructure (e.g., 33kV/220kV PTRs and bays) to connect the BESS to the identified substations.

D. As per the RfS provisions, DISCOMs' consent/confirmation is required for off-take of power from the BESS at the discovered tariffs/fixed charges before issuing Letters of Award (LOA) to the selected developers. NHPC has provided copies of the RfS document, the Battery Energy Storage Purchase Agreement (BESPA – to be signed between NHPC and selected developers), and the Battery Energy Storage Supply Agreement (BESSA – to be signed between NHPC and APDISCOMs).

E. The DISCOMs have to pay a trading margin of 7 Paise per kWh to the NHPC.

F. The proposed procurement supports grid stability, peak demand management, and renewable energy integration in Andhra Pradesh through competitive tariffs under the VGF-supported scheme.

G. As per the Ministry of Power, the deadline for signing of BESPA is 16.07.2025, failing which the capacity allocated under VGF to the concerned BESS Implementing Agency (BIA) shall be withdrawn.

Further, APCPDCL requested the Commission's consent/approval for the above the discovered Monthly Capacity charges and trading margin payable, the RfS Document, and the BESS Agreement to be signed between NHPC and APDISCOMs.

6. The Commission, vide letter dated 04.07.2025, has granted **in-principle approval** for APDISCOMS to proceed with BESS procurement, subject to the following conditions:

   A. APTRANSCO shall develop the necessary infrastructure as specified in the above letter.

   B. If there are delays in APTRANSCO's grid connectivity or substation readiness, there is scope to extend the 18-month completion deadline. To mitigate these delays, DISCOMs should coordinate with APTRANSCO and consider simplifying the technical requirements—specifically the need for 220 kV infrastructure for a 33 kV interconnection—to reduce both costs and construction time.

   C. As per the terms of the BESSA, NHPC and APDISCOMS have 120 days from the "Effective Date" to secure all regulatory approvals, including the Commission's adoption of tariffs. As any delay by the Commission in issuing the orders will automatically result in a day-for-day extension of the project's Financial Closure and Commissioning deadlines, the DISCOMS must approach the Commission immediately after signing the agreement with NHPC to avoid project stagnation.

7. In response to the above letter, APDISCOMs, vide letter dated 21.07.2025, informed the Commission that they had entered into the BESSAs with NHPC on 10.07.2025 for a contracted capacity of 500 MW/1000 MWh, as per the Commission’s direction, and requested the Commission to accord approval/consent for the same.

8. The Commission, vide the letter dated 30.07.2025, directed the DISCOMs to file an appropriate Petition before it for approval of the BESSA entered into

with NHPC, along with the associated BESPAs, executed between NHPC. and successful developers for passing appropriate orders.

Gist of the Petition:

9. Accordingly, the DISCOMs filed the present Petition. The submissions in the Petition, in brief, apart from that already stated above, are as follows:

A. The MOP, vide letter dated 17.10.2024, allocated budgetary support of Rs.1,350 Crores for 5000 MWh BESS capacity under the CPSU component with VGF up to 30% of capital cost or Rs.27 lakh/MWh (whichever is lower). NHPC was allocated 1,500 MWh, of which 1,000 MWh is allocated to Andhra Pradesh. The primary objective of the BESS is to store renewable energy and discharge during peak periods for grid stability and RE integration

B. APTRANSCO was requested to provide an undertaking to the APDISCOMs, guaranteeing that the necessary infrastructure will be completed within 18 months, aligning with the BESS installation timeline. Should APTRANSCO fail to commission the infrastructure within this period, they will be responsible for reimbursing the applicable BESS charges to the APDISCOMs until the infrastructure is operational.

C. The BESSAs between APDISCOMs and NHPC shall come into effect from the signing of the same, and such date shall be the Effective Date for the purpose of the BESSAs.

D. A condition precedent requires the requisite Commission's approvals (including tariff adoption) within 120 days of the BESPAs' effective date.

Any delay beyond this will result in a day-for-day extension of the Scheduled Financial Closure and Scheduled Commissioning Date.

E. The BESSAs are coterminous with the BESPAs. The rights and obligations of the Buying Entities (APDISCOMs) mirror those of NHPC in the BESPAs on a *mutatis mutandis* basis.

F. Because NHPC is an intermediary and not a grid-connected entity for this capacity, APDISCOMs are fully responsible for directly coordinating with the developers, State Load Dispatch Centers (SLDC), and Regional Power Committees (RPC) for scheduling, dispatch, and deviation settlement.

G. NHPC acts purely as an intermediary. It assumes no obligations beyond what the BESS Developers duly perform. NHPC has no independent legal obligation to pay compensation for developer shortfalls unless it has successfully recovered those funds from the developer without encumbrances.

H. If a developer falls short of performance requirements, they are liable to pay compensation. This amount is passed to the Buying Entity. If not remitted within 60 days of year-end, the APDISCOMs can recover it by offsetting it against their monthly invoices.

I. The BESS Developers must maintain an annual average availability of at least 95%. An incentive of Rs. 0.5/kWh is provided to the Developer for incremental supply beyond the Round-trip Efficiency threshold of 85%.

J. The minimum dispatchable capacity shall be 70% at the end of the 12-year term (BESS degradation permitted over 12 years is @ 2.5% per year).

K. The scheduled commissioning date for the projects is 15.01.2027. BESS Developers may commission full or part Capacity before the scheduled commissioning date. APDISCOMs shall purchase this Capacity at the applicable tariff plus the trading margin.

Views/Objections/Suggestions

(List of Objectors is as per Annexure-I)

10. **Sri M. Venugopala Rao and two others**

A. The Commission should direct the DISCOMs to provide the per-unit BESS charges for power supplied during the proposed four daily peak hours. This calculation must be based on the monthly per-MW charges and the total number of units to be supplied by the BESS during those four hours.

B. There is conflicting information regarding the VGF and trading margins. Two different figures for VGF from the Government of India (GoI) have been cited: VGF up to 30% of the capital cost or Rs.27 lakh per MWh, whichever is lower; VGF up to 40% of the capital cost. Similarly, the trading margin payable to NHPC shows discrepancies: 7 paise per unit; 4 paise per kWh of energy sold, with an additional provision of 3 paise per unit. The DISCOMs may clarify the discrepancies.

Reply of APDISCOMs:

A. The BESS charging requires input power from the DISCOMs. Given the 85% round-trip efficiency specified in the RfS terms and conditions, a

one MW BESS capacity can deliver 2 MWh per cycle. With 2 cycles per day, the maximum daily energy output is 4 MWh, totalling 120 MWh per month. Based on the discovered tariff for the BESS at Ghani SS, the per-unit storage cost is calculated as: Rs/kWh = 222,000/120,000 = 1.85. The per-unit storage cost for the BESS projects at Jammalamadugu and Kuppam will be lower than this computed figure, as the discovered monthly tariffs for those projects are lower.

B. The project qualifies for a VGF of Rs. 27 lakh per MWh, or 30% of the capital cost, whichever is lower, as it was selected under the MOP's guidelines issued on 17.10.2024. Additionally, in accordance with Articles 1.1 and 1.2 of the BESSA between APDISCOMs and NHPC, a trading margin of 7 paise per unit is payable by APDISCOMs to NHPC.

11. **ACME Solar Holdings Limited**

A. BESS significantly strengthen the country's renewable energy landscape. By delivering stability and reliability to intermittent renewable sources, which has been its most formidable impediment in replacing conventional sources of electricity, BESS helps resolve—and ultimately eliminate—the persistent gap between electricity supply and demand. This technology generates broad benefits, including greater grid stability, longer service life for transmission and distribution networks, accelerated electrification, and the ability to provide round-the-clock renewable power nationwide.

B. It is commonly acknowledged by the Central Government and relevant authorities that BESS offers significant benefits. Specifically, the Central Electricity Authority (CEA) in its January 2020 report titled

"Optimal Generation Capacity Mix for 2029-30" stressed the need to promote BESS. The report notes that declining costs would make BESS more financially viable and accessible, thereby reducing overall electricity costs. This would contribute to an optimal generation capacity mix (balancing sources such as renewables with storage) and deliver substantial environmental benefits at a broader scale.

C. The importance and indispensable role of BESS technology have been consistently recognised and emphasised by various competent courts over time. In a recent ruling, the Hon'ble APTEL in the case of JSW Renew Energy Five Ltd. v. CERC & Ors. (Appeal Nos. 26 & 54 of 2025), addressed the significance of BESS technology. The Tribunal highlighted its potential to advance the overarching goal of protecting and promoting consumer interests by reducing tariffs on electricity generation and distribution. Specifically, APTEL observed that implementing BESS technology reduces the overall tariff, aligns with prevailing market rates for purchasing renewable energy, and directly promotes and safeguards consumer interests.

D. The tariffs in the BESPAs executed with ACME's Special Purpose Vehicles (SPVs) were determined through a transparent, competitive bidding process fully compliant with the MoP guidelines. These discovered tariffs align with—if not lower than—the prevailing market rates. The Tender Evaluation Committee (TEC) rigorously analysed the e-Reverse Auction (e-RA) price bids, benchmarking them against current market rates, and was satisfied with the propriety and reasonableness of the respective L1 (lowest) tariffs.

E. Section 63 of the Electricity Act, 2003 mandates the adoption of the tariff determined through a transparent bidding process in accordance with guidelines issued by the Central Government. Further, the Commission is entrusted with the function of regulating the purchase and procurement of electricity by distribution licensees and the prices at which such procurement shall take place as stipulated in Section 86(1)(b) of the Electricity Act, 2003.

F. The appropriate commission is obligated to adopt the tariff discovered through a competitive bidding process under Section 63 of the Electricity Act, 2003, once satisfied that: The bidding process was conducted in a transparent manner and in conformity with the Central Government's prevailing guidelines; The tariff balances the interests of Generators/DISCOMs on one side and consumers on the other. This is a well-settled position, supported by a consistent line ("catena") of Supreme Court judgments.

G. The Commission may be pleased to approve the BESSAs dated 10.07.2025 executed between NHPC and APDISCOMs for the contracted capacity of 500 MW/1000 MWh and the corresponding BESPAs dated 16.07.2025 executed by the individual BESSDs. The adoption of tariffs will be in line with the statutory scheme and the policy intent of ensuring transparent, cost-effective, and competitive procurement of renewable energy, thereby promoting investor confidence and facilitating the timely implementation of BESS technology.

Reply of APDISCOMs: The response filed by ACME Solar Holdings Limited aligns with and supports the grounds and prayers of the APDISCOMs in OP

No. 65 of 2025. APDISCOMs fully concur with the supplemental information and legal citations provided by ACME Solar regarding the necessity of BESS in mitigating renewable energy intermittency and the adoption of relevant tariffs.

12. During the Public Hearing on 05.02.2026, Sri Jagannadha Sarma, representing APDISCOMs, made a presentation on the Petition filed by APDISCOMs.

During the hearing, Sri Ch. Baburao from CPI(M) orally submitted the following views/objections/suggestions:

The proposal to introduce BESS to manage peak demand is welcomed, but the procurement process lacks transparency. Despite repeated requests, critical details about the agreements have not been fully disclosed to the public or objectors, including the number of bidders, the quoted prices, and the level of competition. The current quoted prices of Rs. 2.00–Rs. 2.20 lakh per MW (with a storage cost of Rs. 1.85 per unit) appear inflated, especially when compared to a reported quote closer to Rs. 1.50 lakh per MW from other entities like Ecoren. A 12-year term is considered too long. Battery CAPEX has dropped by 80% in the last decade and is projected to fall another 30–40% soon. Adopting shorter terms (like Gujarat's 7-year agreements) or incorporating Mid-term Review provisions (like Rajasthan) would better protect the state from being locked into high, outdated rates. The necessity of paying a 7-paise per unit trading margin to NHPC for 12 years is questioned. AP should eliminate this intermediary cost by calling for bids directly from developers, as is done in many other states. Given that these projects receive a 30% government subsidy (public money), the

resulting savings must be passed directly on to consumers through lower tariffs. BESS projects may become redundant over the next 12 years, given that hydro-pumped storage projects are expected to come online in 3 years and cheaper alternatives, such as peaking gas power plants, exist. Since DISCOMs themselves stated that they met peak energy needs through cheaper short-term purchases, the need to procure BESS for 12 years is questionable.

Sri Tabrez Malawat, Advocate representing ACME Solar Holding Limited, requested that the Commission mention the date of the BESS agreements and the specific tariff in the order, so that financial closure becomes easier for the Developer. The Commission raised two key questions: Why is the tariff for the Ghani BESS higher than that of Kuppam, given that both projects use the same batteries? and the justification for paying NHPC a trading margin of 7 paise per unit for 12 years, when they are not power generators and their role is merely that of a bidding agency. Sri Tabrez Malawat explained that the regulatory framework is being finalised to expedite the process, and secondly, the establishment of the BIA (NHPC), along with the accompanying security and sovereign guarantee, enhances the credit rating. He further noted that NHPC is leveraging its own brand and charging for the associated risk it undertakes. When the Commission queried the battery's life and the rationale for a 12-year contract rather than a 5- or 7-year contract, Sri Tabrez Malawat replied that this is part of a standard PPA finalised in accordance with the MOP Guidelines and is also intended to optimise the use of the battery. The Commission sought clarification on whether the stated percentage of battery capacity

degradation over the years has any scientific basis. To this, Sri Tabrez Malawat replied that it has been technically verified and that manufacturers also guarantee it.

Sri Mukesh Negi, representing NHPC, defended the trading margin of 7 paise per unit. He argued that this rate is consistent with MOP guidelines and has been approved by other State Commissions for similar BIAs. Furthermore, he highlighted the payment security mechanism provided by NHPC, which includes a security fund, an escrow arrangement, and the assumption of operational risks. He also pointed out that the CERC Trading License Regulations allow the trading margin for long-term contracts to be determined through mutual agreement between the intermediary and the procurer. He sought time to file further counter/written submissions on behalf of NHPC. The Commission allowed him 10 days to file the counter/written submission.

In response to Sri Ch. Babu Rao's objection regarding the lack of transparency and detail, Sri Jagannadha Sarma explained that the bidding process was conducted through a national competitive bid on the CPP portal, in accordance with the MOP bidding guidelines. He stated that 17 companies participated and that the bid valuation committee submitted bid evaluation reports regularly at every stage. Furthermore, APDISCOMs regularly submitted details of the various bidding stages to the Commission, which were also made public.

13. Pursuant to the Commission’s permission during the Public Hearing, NHPC subsequently filed the following written submissions:

The 7 paise/kWh trading margin is uniformly applied across NHPC's REIA/BIA projects, and is compliant with the Ministry of Power's BESS Guidelines dated March 10, 2022 (Clause 2.G(4)), which permit an Intermediary Procurer to charge 7 paise/kWh or 0.5% of Capacity Charges (whichever applies), as well as Regulation 8(1) of the CERC Trading Licence Regulations, 2020. It matches the approved trading margin for similar arrangements by entities like SJVNL, SECI, NTPC in other states, and NHPC's own BESS project with Kerala. As the Intermediary Procurer/Battery Energy Storage Implementing Agency (BIA), NHPC undertook extensive responsibilities—including conducting the full competitive bidding process (RfS issuance, e-Reverse Auction, bid evaluation, LOA issuance, and contract execution), enabling timely VGF availing, executing back-to-back BESPAs with developers and BESSAs with DISCOMs, ongoing coordination, compliance monitoring, contract administration, and maintaining Payment Security Mechanisms (Escrow/Payment Security Fund) for timely developer payments, involving financial oversight, risk management, invoicing, scheduling, billing, settlement, and reconciliation throughout the project life. These substantive intermediary functions, performed at NHPC's own risk while fully passing through capacity to DISCOMs, warrant the margin as reasonable, proportionate, and regulatory-compliant compensation, with no deviation from the guidelines or tender documents.

Commission's Analysis and Decision

14. Andhra Pradesh is a Renewable Energy (RE) intensive state with a significant installed base of wind and solar power. While this supports

decarbonization, it creates severe daily grid management challenges: Solar generation peaks in the middle of the day, when overall power demand is relatively low. This leads to a massive surplus of daytime energy, causing a deep "belly" in net demand known as the "duck curve".

15. As the sun sets, solar generation drops to zero precisely when the state's evening peak demand surges. The grid requires steeply ramping resources to address this sudden deficit. Without storage, the state has to curtail (waste) free daytime solar energy or backdown thermal generation to keep the grid stable, while simultaneously purchasing extremely expensive power from the short-term spot market to meet evening demand.

16. Recognising these issues, the APERC's Resource Plan Order dated 27.06.2024 for the 5th and 6th control periods explicitly recommended that APDISCOMs contract BESS capacity to manage intra-day banking—storing cheap daytime solar surplus and discharging it to mitigate morning and evening shortages.

17. The necessity of BESS is not merely a state-level preference; it is a foundational requirement mandated by the Central Electricity Authority (CEA) for the national grid's survival. To safely integrate India's target of 500 GW of non-fossil capacity by 2030, the CEA's updated Optimal Generation Mix report mandates the deployment of 41.65 GW/208.25 GWh of BESS nationwide. BESS is no longer an optional accessory; it is a mandatory grid asset for balancing intermittent renewable sources.

18. GRID-India and the CEA have noted that massive RE integration without storage leads to dangerous frequency fluctuations outside the permissible bands of the Indian Electricity Grid Code (IEGC). Unlike conventional

thermal plants, which take significant time to ramp up, BESS provides instantaneous (millisecond) response times, offering crucial ancillary services such as frequency regulation and voltage support that help prevent grid failures.

19. The AP ICE Policy 2024 mandates the deployment of 25 GWh of BESS to manage this massive influx of targeted intermittent power of 160 GW in the State. The proposed BESS projects will help meet the target. Further, the APERC (Planning, Procurement, Deployment, and Utilisation of Battery Energy Storage Systems) Regulations, 2025, are intended to catalyse large-scale deployment of battery energy storage systems in the state, aligning with the Andhra Pradesh Integrated Clean Energy Policy 2024.

20. The MoP has notified a mandatory, long-term Energy Storage Obligation (ESO) trajectory for all distribution utilities. Under this policy, DISCOMs must incrementally increase the share of energy procured through storage systems to reach 4% of their total electricity consumption by 2029-30. Procuring this 500 MW/1000 MWh capacity ensures APDISCOMs remain compliant with these binding national trajectories.

21. The procurement is heavily supported by GoI financial schemes and statutory compliance targets, making it highly advantageous for Andhra Pradesh right now. The Ministry of Power (MoP) introduced a massive budgetary support of Rs. 1,350 Crores to bridge the cost gap for 5,000 MWh of BESS. By securing a 1,000 MWh allocation through NHPC, APDISCOMs successfully secured VGF covering 30% of the capital cost (up to Rs. 27 lakh per MWh). This central subsidy directly reduces the Levelized Cost of Storage (LCOS), transferring substantial benefits to AP consumers.

22. The ultimate goal of electricity regulation is to protect consumer interests, a principle validated by the highest appellate authority in the power sector. The Honourable Appellate Tribunal for Electricity (APTEL), in the recent ruling of JSW Renew Energy Five Ltd. v. CERC, extensively reviewed the role of BESS technology. The APTEL observed that instead of viewing storage as an added cost, BESS actually reduces the overall tariff burden. By eliminating DISCOMs' reliance on predatory spot-market pricing during peak hours and preventing the curtailment of already-paid-for renewable energy, BESS aligns with prevailing market economics and directly safeguards consumers' financial interests.

23. The contention of one of the objectors that the procurement process lacked transparency and that critical details—such as the number of bidders, quoted prices, and the level of competition—were withheld from the public is factually incorrect. The documentary evidence, including the Tender Evaluation Committee (TEC) Report and the Commission's own records, demonstrates an exhaustive, highly competitive, and fully public procurement process. The bidding was conducted through a national competitive bid via the Central Public Procurement (CPP) portal, ensuring absolute systemic transparency. Far from being a restricted process, the tender attracted a robust total of 17 companies.

The TEC report transparently lists the 15 bidders whose technical bids were deemed responsive, including major national players such as SECI, NTPC Green Energy, Apraava Energy, and Avaada Energy. The exact level of competition for the financial stage at each location is exhaustively documented: 7 bidders for Jammalamadugu, 6 for Ghani, and 8 for

Kuppam. The exact prices quoted by every single bidder at every stage of the process were recorded and evaluated transparently. The initial price bids were opened publicly on the CPP website on 19.06.2025. The TEC Report publicly details the initial quotes from all bidders, such as ACME Solar Holdings Limited, which quoted Rs. 2,55,000 for Jammalamadugu and Ghani, and Rs. 2,56,000 for Kuppam.

Following this, an electronic Reverse Auction (e-RA) was conducted on 24.06.2025. The final, reduced prices achieved through this competitive e-RA are fully disclosed: Rs. 2,08,000/MW/Month by Patel Infrastructure for Jammalamadugu, Rs. 2,22,000/MW/Month by ACME Solar for Ghani, and Rs. 2,10,000/MW/Month by ACME Solar for Kuppam. The process was not conducted in secret; it was subject to public and regulatory scrutiny. The Bid Valuation Committee submitted evaluation reports regularly at every stage of the process. These details were made public.

To ensure public participation, the Commission posted Public Notices on its website on 27.11.2025 and 12.01.2026. Crucially, these notices were accompanied by copies of the Petition and related material, inviting stakeholders' views, objections, and suggestions. A public hearing was held on 05.02.2026, offering both in-person and online participation options, where these exact details were presented. The entire process was rigorously governed by statutory frameworks to prevent any arbitrary or opaque decision-making. The competitive bidding was conducted strictly in accordance with the Ministry of Power (MoP) bidding guidelines. The Contract Civil Division of NHPC formally certified that the bidding was carried out in a transparent manner in accordance with MoP guidelines.

24. The contention of one of the objectors that the discovered tariffs are inflated compared to a single aggressive outlier quote, combined with the suggestion to delay procurement because battery prices are falling, represents a classic "wait-and-see" fallacy in infrastructure development. While it sounds economically prudent on the surface, applying this logic to state grid management in practice leads to severe financial losses and an endless cycle of project paralysis. The argument that we should scrap this process because "prices have dropped since the auction and will drop another 30-40% soon" is a trap that fundamentally misunderstands utility-scale infrastructure.

Technology costs (like solar panels in the 2010s and batteries today) are in a continuous deflationary cycle. If the DISCOMs consistently cancel tenders because "prices will be lower next year," they will never build any infrastructure. Re-initiating a fresh procurement process (drafting new RfS documents, obtaining MoP/regulatory approvals, inviting bids, conducting technical evaluations, holding a new e-Reverse Auction, and finalising PPAs) takes a minimum of 6 to 9 months. By the time a new hypothetical tender is finalised in late 2026 or 2027, battery prices will have dropped again. Objectors will once again demand cancellation, trapping the DISCOMs in a permanent cycle of administrative delays while the grid remains highly unstable. The tariffs discovered in the June 2025 e-Reverse Auction reflect the true, competitive market consensus at that time.

The financial losses incurred by the DISCOMs due to a 1-to-2-year delay may exceed any marginal savings from a hypothetically lower future BESS tariff. Without BESS, APDISCOMs are forced to manage daily peak demand

by purchasing expensive, volatile power from the short-term Day-Ahead or Real-Time Markets (IEX), where peak summer prices routinely hit the regulatory ceiling of Rs. 10 per unit. Simultaneously, without storage, the state is forced to "back down" or curtail virtually free daytime solar and thermal generation (incurring liability for fixed charges without taking the corresponding energy) since the grid cannot absorb the surplus energy.

The current tariffs are only possible because they are heavily subsidised by the Central Government. The projects secure VGF of up to 30% of the capital cost (or Rs. 27 lakh per MWh) from a specific MoP budgetary allocation. This central subsidy is strictly time-bound. APDISCOMs were explicitly warned that failing to sign the BESSA by the MoP deadlines would result in the 1,000 MWh VGF allocation being withdrawn from the BESS Implementing Agency (NHPC). If APDISCOMs scrap this tender to pursue lower CAPEX in 2026, they will likely lose the 30% central subsidy.

Comparing a rigorously discovered national tariff to an isolated, reported quote is an asymmetrical comparison. Extremely low outlier bids in parallel state auctions often entail severe execution risks. Developers occasionally submit aggressive, unviable bids to capture market share, only to abandon the project or demand tariff revisions later when they fail to achieve financial closure. Abandoning a finalised, subsidised (30% VGF), and highly competitive bidding process to chase hypothetical future price drops is risky.

As regards the variations in quoted tariffs across the three locations, the Commission is of the view that these are a natural outcome of transparent market dynamics combined with site-specific engineering realities. While

the core battery technology remains identical, the final discovered prices appear to be primarily driven by varying levels of competitor participation during the live e-Reverse Auction and by different infrastructure requirements specific to each site.

25. The contention of one of the objectors that Gujarat uses 7-year agreements for BESS is factually incorrect and inconsistent with current market practices. In fact, as of March 2026, Gujarat Urja Vikas Nigam Limited (GUVNL) signed multiple BESPs—including with KPI Green Energy and Rajesh Power—specifically for 12-year terms as part of its Phase VII procurement. While reducing a contract term to 7 years might superficially seem like a strategic way to avoid being locked into older technology, doing so for utility-scale BESS introduces severe financial and operational drawbacks. The 12-year standard is not an arbitrary number; it is an industry-calculated benchmark designed to optimise costs and technical efficiency.

Utility-scale battery projects are highly capital-intensive upfront. In a BESPA, the developer recovers this massive initial capital expenditure (CAPEX), along with operating expenses and interest, through the monthly capacity charges billed to the DISCOMs over the life of the contract. If a contract is compressed from 12 years to 7 years, the developer must amortise the same multi-Crore-Rupees infrastructure cost in nearly half the time. To achieve this accelerated recovery, the developer will be forced to submit a drastically higher monthly bid (Rs./MW/month). A 7-year agreement would trigger an immediate tariff shock, burdening the state grid and ultimately the end consumer with inflated per-unit electricity costs.

The 12-year term is engineered to match the exact electrochemical lifecycle of modern grid-scale batteries. The vast majority of utility-scale storage utilises Lithium Iron Phosphate (LFP) chemistry. Independent degradation models and real-world operational data demonstrate that, under standard utility conditions—typically two charge-discharge cycles per day with controlled thermal management—an LFP battery system operates highly efficiently for about 12 years. In the energy storage industry, a battery's "End of Life" is typically defined as the point where it degrades to 70% of its original capacity. A 12-year PPA spans this optimal performance window perfectly. It allows DISCOMs to extract the maximum usable value from the initial asset without assuming the operational risks and rapid capacity declines that occur as the battery chemistry destabilises in the years immediately following.

Energy infrastructure relies on project financing, usually involving long-term debt from banks or Non-Banking Financial Companies (NBFCs). Institutional lenders structure infrastructure loans with extended tenors (typically 10 to 15 years) to ensure that annual debt servicing obligations remain manageable. Lenders strictly require that the power purchase agreement term match or exceed the loan term. A 7-year PPA is widely viewed by financial institutions as an unbankable risk for large infrastructure projects. To finance a 7-year project, developers would be forced to secure short-term commercial loans that carry significantly higher interest rates. This elevated cost of capital is unavoidably passed through to the developer’s bid, further driving up the tariff.

Crucial financial support mechanisms, such as the Central Government's VGF, are structurally tethered to standardised long-term bidding guidelines established by the Ministry of Power. The VGF provides up to 30% of the capital cost specifically to bridge the economic gap over a long-term horizon, making the resulting tariff affordable for consumers. Deviating from the standard 7-year term can complicate or render a project ineligible for these central subsidies. Without the VGF absorbing up to a third of the capital cost, the DISCOMs would be forced to bear the full, unsubsidized market price of the battery systems.

26. The Commission finds the rationale on the contention raised by one of the objectors regarding NHPC's excessive trading margin claim. While NHPC's role as a BIA is essential, its claim for a **7 paise/kWh** trading margin is fundamentally misaligned with the nature of a BESS project. It represents an unjustified financial windfall. The 7 paise/kWh margin is a legacy metric designed for traditional power generation, where a trader buys and sells physical units of electricity (Energy). A BESS does not generate energy; it provides a service. APDISCOMs supply their own energy to charge the battery and then take it back. NHPC is not "trading" energy; they are administering a fixed-capacity storage contract. Therefore, applying a volumetric energy markup (paise per kWh) to a capacity-leasing service is fundamentally flawed.

A close reading of the BESSA reveals that NHPC assumes zero financial or operational risk. The agreements are specifically drafted to completely insulate NHPC, placing the entire financial burden for security, guarantees, and delay penalties on APDISCOMs. NHPC claims it assumes operational

risks, but BESSA explicitly shields it from any independent exposure. The BESSA explicitly states that the sale of capacity by NHPC to the DISCOMs is "entirely on a back-to-back basis" with the intent that "there shall be no residual liability on the NHPC towards the BESSD which will not be fulfilled by the Buying Entity".

The agreement further cements this by stating that the DISCOMs' obligations are enforceable purely on a mutatis mutandis basis, "without any additional or independent exposure whatsoever to NHPC". If the developer fails to perform, NHPC is entirely protected. The BESSA states: "The Parties agree that as an intermediary, NHPC shall have no legal obligation to pay any amount towards this compensation, except when the amount of such compensation has been recovered from the BESSD by NHPC without any conditions and encumbrances". NHPC is acting as a pure post office; they only pay out once they receive the money.

NHPC claims it is providing an Escrow and a Payment Security Fund, implying that these are services it funds. But there is no mention of the 'Escrow' in the BESPAs between NHPC and BESSDs. Further, it is the BESSDs that contribute to the Security Fund (Rs.5 Lakhs/MWh), and NHPC only maintains it. Though NHPC maintains LC as payment security with BESSDs and pays the Late Payment Surcharge (LPS) for delayed payments to BESSDs, these liabilities are passed on to the DISCOMs via a back-to-back arrangement through BESSAs. Under Article 2.5 of the BESSA, the Buying Entity (DISCOM) must provide a single, unconditional, revolving, and irrevocable Letter of Credit and Article 2.5.6 mandates: "All costs relating to opening, maintenance of the Letter of Credit shall be borne

by the Buying Entity". NHPC does not spend a single rupee to maintain this LC. Under Article 2.6, the DISCOM is strictly required to provide a State Government Guarantee (or a Tri-Partite Agreement) to secure payment. Security is backed by the sovereign guarantee of Andhra Pradesh, not by NHPC's balance sheet.

Article 2.7 states that the Buying Entity (DISCOM) is responsible for providing the Payment Security Fund to cover 3 months of billing. Under Article 2.3 of the BESSA, if the DISCOM pays beyond the Due Date, a Late Payment Surcharge (LPS) is strictly payable to NHPC. The BESSA explicitly incorporates the rigorous Electricity (Late Payment Surcharge and related matters) Rules, 2022. This means the LPS base rate increases by 0.5% for every month of delay.

If a DISCOM defaults, NHPC draws immediately on the DISCOM-funded Letter of Credit. If that fails, they invoke the State Government Guarantee. And for every day the payment is late, NHPC collects penal interest. NHPC's cash flows are flawlessly protected. Therefore, NHPC's contention regarding the "Risk Premium" compensation is entirely unjustified when there is no actual risk. NHPC's assertion that a 7 paise/unit margin is required to cover its "risks and security mechanisms" is contradicted by the BESPAs and BESSAs. Because NHPC assumes absolute zero financial risk, its role is limited to purely administrative accounting. Further, NHPC collected from the Selected Bidders amounts at Rs.1,00,000/MWh + 18% GST towards administrative overheads, Project monitoring activities, coordination with State Authorities and others, DISCOM/STU, pre-commissioning and commissioning expenses, etc.

Moreover, NHPC's own defence references the MoP BESS Guidelines dated March 10, 2022 (Clause 2.G(4)), stating it permits an Intermediary Procurer to charge "7 paise/kWh **OR** 0.5% of Capacity Charges (whichever applies)". Because this is a standalone BESS project procured purely on a Capacity Basis (Rs./MW/Month), the "whichever applies" clause heavily dictates that the margin must be tied to the Capacity Charge, not the volumetric energy flow. Applying the 7 paise/kWh margin results in an exorbitant and unjustified administrative fee compared to the 0.5% capacity option. A one MW battery cycled twice a day delivers 4 MWh (4,000 kWh) daily, or roughly 120,000 kWh monthly at maximum Capacity. At 7 paise/kWh, NHPC collects **Rs. 8,400 per MW per month** simply for administering the contract. Using the highest discovered tariff of Rs. 2,22,000/MW/month, a 0.5% administrative margin equals just **Rs. 1,110 per MW per month**.

By choosing the 7 paise metric instead of the 0.5% capacity metric offered in the same MoP guideline, NHPC is extracting an administrative fee that is more than **7.5 times higher than the latter**. This is an unjustified burden on AP consumers for a purely administrative, pass-through service. NHPC cites Regulation 8(1) of the CERC Trading Licence Regulations to justify the 7 paise. However, CERC trading margins are meant to compensate traditional traders who assume the risk of volume fluctuations, open access, and energy market volatility. In this back-to-back BESSA/BESPA arrangement, NHPC assumes absolutely zero energy-volume risk. They are a "BESS Implementing Agency" (BIA) executing a fixed-capacity tolling agreement. Their compensation should reflect fixed administrative effort (a

percentage of the capacity charge), not an energy trader's volume-based markup.

As regards the contention of NHPC that other State Commissions permitted 7 paise per unit trading margin, it may be noted that APERC is an independent statutory body whose primary mandate under Section 86(1)(b) of the Electricity Act, 2003, is to regulate electricity purchase and procurement to protect the consumers of Andhra Pradesh and it is not legally bound by the decisions of other State Commissions.

Therefore, the Commission rejects the unjustified 7 paise/kWh margin and directs the DISCOMs to cap the same at **0.5% of the Capacity Charges**, as explicitly provided as an option in Clause 2.G(4) of the MoP Guidelines. **The DISCOMs shall amend the BESSAs appropriately to reflect the same.**

27. The contention of one of the objectors that BESS agreements are unnecessary due to the impending arrival of Pumped Hydro Storage (PHS), the availability of gas peaker plants, or the use of short-term market purchases is fundamentally flawed. It relies on outdated economic assumptions and misunderstands modern grid dynamics. The idea that PHS will render BESS "redundant" ignores both the sheer scale of India's storage needs and the distinct technical roles of these technologies.

The CEA's Optimal Generation Capacity Mix report unequivocally states that to integrate 500 GW of non-fossil capacity by 2030, India requires 61 GW of energy storage. This massive requirement cannot be met by one technology alone. The CEA mandates both: projecting ~41.6 GW from BESS and ~18.9 GW from PHS. PHS is a massive civil engineering endeavour. Independent data highlights that PHS projects have gestation periods of 5

to 10 years, often plagued by extended delays due to land acquisition, rehabilitation, and stringent environmental/forest clearances. By contrast, BESS can be commissioned in 6 to 18 months, providing the immediate grid relief the state urgently needs. BESS can achieve millisecond response times, making it uniquely suited for instantaneous frequency regulation and primary grid balancing. PHS systems take several minutes to ramp up from pumping to generation mode. BESS is a technically superior asset for grid stability.

As of early 2026, BESS has definitively crossed the economic tipping point, becoming cheaper than gas generation. Peaking gas power plants require continuous purchases of highly volatile fossil fuels (often imported LNG subject to severe geopolitical price shocks). Power generation using gas is economically and logistically unviable in India due to severe domestic fuel shortages that force reliance on expensive, geopolitically vulnerable imported LNG—a crisis already reflected in the country's massive fleet of stranded gas power plants. BESS, however, acts as a sponge for surplus, zero-marginal-cost solar power generated during the day. Once the capital expenditure is amortised through the monthly tariff, the per-unit storage cost of BESS virtually drops to zero.

Relying on the Day-Ahead Market (DAM) or Real-Time Market (RTM) on the IEX for peak power instead of locking in a 12-year BESS contract is a risky financial strategy that puts consumers at risk. While short-term market prices can be low during periods of surplus, they become highly predatory during peak demand. The spot electricity market is exceptionally vulnerable to extreme volatility driven by early summers, coal supply constraints, and

geopolitical shocks. During peak summer months, IEX prices consistently skyrocket. The volatility became so severe in recent years that the Central Electricity Regulatory Commission (CERC) was forced to intervene and implement a strict price ceiling (capped at Rs. 10/kWh) just to prevent the market from spiralling out of control. Relying on the spot market for firm peak capacity exposes the DISCOM to buying power at Rs. 10/unit whenever demand surges. Even if the DISCOMs are willing to buy power at Rs.10/unit, it may not be available in the market. The 12-year BESS contract acts as a long-term physical hedge. By locking in a predictable, fixed storage cost of roughly Rs. 1.85 per unit, the DISCOM completely insulates the state's consumers from a decade of inevitable spot market price shocks.

28. Therefore, the Commission, for the reasons stated above, hereby grants approval for the Battery Energy Storage Sale Agreements (BESSAs) dated 10.07.2025, the associated Battery Energy Storage Purchase Agreements (BESPAs) dated 16.07.2025 for the procurement of 500 MW/1000 MWh BESS capacity, and for the adoption of the tariffs discovered as mentioned under Para 5(B) of this order under Section 63 of the Electricity Act, 2003, for a period of 12 years. This approval is contingent upon the amendment to the BESSA detailed in Para 26.

Sd/-
P.V.R.Reddy
Member & Chairman **i/c**

ANNEXURE-I

(List of Objectors)

S.No	Name of the Objector
1	Sri M. Venugopala Rao, Senior Journalist & Convener, Centre for Power Studies, H.No.1-100/MP/101, Monarch Prestige, Journalists' Colony, Serilingampally Mandal, Hyderabad.
2	Sri Ch. Baburao, State Secretariat Member, AP Committee, CPI (M), H.No.27-30-9, Akulavari Street, Governorpeta, Vijayawada.
3	Sri Kandharapu Murali, Secretariat Member, CPI(M), Tirupati District Committee, Tirupati.
4	ACME Solar Holdings Limited, Plot No.152, Sector-44, Gurugram-122002, Haryana, India.