



Delhi Electricity Regulatory Commission
Viniyamak Bhawan, 'C' Block, Shivalik, Malviya Nagar, New Delhi – 110017.

F.11(2351)/DERC/2025-26/8527

Petition No. 44/2025

In the matter of: Petition u/S 86(1)(b) of the Electricity Act, 2003 read with Regulation 57 of the DERC Comprehensive Conduct of Business Regulations, 2001 for an in-principle approval of the Commission for commissioning of a grid scale Battery Energy Storage System (BESS) at 33/11 KV Shivalik Grid and to conduct of Comprehensive Bidding Process for the installation of BESS.

BSES Rajdhani Power Ltd.

... Petitioner

Coram:

Sh. Ram Naresh Singh, Member
Sh. Surender Babbar, Member

Appearance:

- 1. Mr. Buddy Ranganadhan, Ld. Sr. Advocate for the Petitioner**
- 2. Mr. Dushyant Manocha, Ld. Counsel for the Petitioner**
- 3. Ms. Ashika Jain, Ld. Counsel for the Petitioner**
- 4. Mr. Mukul Arya, Ld. Counsel for the Petitioner**

ORDER

(Date of Order :04.11.2025)

1. The instant Petition has been filed by the Petitioner, BSES Rajdhani Power Ltd. (BRPL) under Section 86(1)(b) of the Electricity Act, 2003 read with Regulation 57 of the DERC Comprehensive (Conduct of the Business) Regulations, 2001 praying, *inter-alia*, to grant an *in-principle* approval for conducting a competitive bidding to discover levelized capacity charges exercise in accordance with the Ministry of Power Guidelines issued on 10.03.2022 under Section 62 of the Electricity Act, 2003 for the selection of an appropriate entity for the commissioning of the 12.5 MW/25 MWh Battery Energy Storage System at 33/11 KV Shivalik Grid.

Petitioner's Submission

2. The Petitioner has submitted that:
 - i. The Petitioner is a distribution licensee under Section 2(17) of the Electricity Act, 2003 (hereinafter "the EA, 2003") having its area of supply in South and West Delhi.
 - ii. The proposed installation of the Battery Energy Storage System (hereinafter, "BESS") at the Shivalik Grid is a strategic intervention, prompted by the growing reliance on Renewable Energy (hereinafter, "RE") sources and the

need to integrate flexible and responsive grid resources. The proposed BESS System shall play a pivotal role in enabling energy transition, improving grid stability, enhancing reliability, and achieving cost optimization in the power procurement portfolio of the Petitioner as elucidated in the Draft Proposal for the BESS System prepared by the Petitioner (hereinafter, "Draft Proposal"). In addition, it is expected to generate an estimated benefit of approximately INR 11.50 Crores annually over the 12-year project life, considering value streams such as energy arbitrage, capex deferral, ancillary services and improved reliability.

- iii. The Petitioner has already undertaken and successfully commissioned a 20 MW/40 MWh BESS at 33/11 kV Kilokari Grid, which has demonstrated encouraging operational and commercial performance. Building upon this experience and recognizing the increasing systemic need for flexible resources, the Petitioner now proposes to install a BESS capacity of 12.5 MW/25 MWh within the Shivalik Grid. It is submitted that the Petitioner proposes to conduct the bidding in terms of the BESS Guidelines and no deviation from the same is being sought.
- iv. The Ministry of Power, GOI (MoP), vide its clarifications issued in 2022, recognized the applicability of energy storage across the Generation, Transmission, Distribution value chain. Further, the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, notified on 29.05.2023 (hereinafter, "IEGC 2023"), provide statutory recognition to Energy Storage System (ESS), incorporating specific provisions for their operational and grid support functions.
- v. Additionally, the BESS Guidelines promote BESS adoption through tariff-based competitive bidding under Section 63 of the EA 2003. The Resource Adequacy Guidelines dated 28.06.2023 further mandate distribution licensee to incorporate flexible resources such as BESS in their Long-Term Distribution Resources Adequacy Plans.
- vi. Several utilities across India have initiated competitive bidding processes for grid-scale BESS, yielding competitive tariffs. The Petitioner has itself successfully commissioned a 20 MW/40 MWh BESS at the 33/11 kV Kilokari Grid, at a monthly capacity charge of INR 4.8 lakhs/MW/month (excluding GST). Similarly, the Gujarat Urja Vikas Nigam Limited (hereinafter, "GUVNL") has progressively reduced tariffs in its Phase – 2 and Phase – 3 BESS procurements to INR 4.49 lakh/MW/month and INR 3.72 lakh/MW/month, respectively. Further, even Rajasthan Rajya Vidyut Utpadan Nigam Limited has installed a 500MW/1000 MWh Standalone Battery Energy System, which has been approved by the Ld. Rajasthan Electricity Regulatory Commission vide its Order dated 17.06.2025 in Petition No. 2302 of 2025.

- vii. The Commission was pleased to grant approval to the Petitioner's earlier petition concerning the BESS at the 33/11 kV Kilokari Grid Substation, including approval of the capacity charges as single-part tariff structure, discovered through a transparent and competitive bidding process. The discovered tariff, forming the basis for annual fixed charges, stood at INR 57,59,610 per MW per year, which has proven to be a cost-effective benchmark when compared with national tenders issued by the Solar Energy Corporation of India Limited (hereinafter, "SECI") and GUVNL.
- viii. Enviro-economic viability of the BESS System Project: The BESS System is expected to generate an estimated benefit of INR 11.50 Crores annually over the 12-year project life. The Petitioner estimates a single-part tariff for the Shivalik Grid BESS, which is both technically feasible and commercially sustainable, drawing on the successful tariff discovery process employed for the Kilokari Project.
- ix. BESS has now become an integral component of grid planning and operations. Unlike passive resources like transformers, BESS is an active and smart resource, operating both as a load and source of generation, increasing grid reliability, quality of supply and reducing power procurement costs. In this regard, it is submitted that the BESS System has various benefits, which include the following:
 - a. Energy Arbitrage: Using BESS to offset peak requirement while charging the BESS at non-peak times could be beneficial where arbitrage opportunities between peak and non-peak hours are high. Peak procurement is often from sources which are substantially higher than non-peak procurement tariffs. Moreover, in times of high Variable Renewable Energy ("VRE"), there will be surplus generation pushing down market prices and leaving Un-Requisitioned Surplus in cheaper stations. BESS can charge during these periods and discharge during peak, reducing power procurement costs and generating savings to the Petitioner.
 - b. Ramping support: Additionally, the proposed BESS System will provide ramping support to address intra-hour fluctuations, particularly under renewable energy-rich scenarios where VRE integration poses challenges to grid stability. The Kilokari BESS has effectively managed such fluctuations, ensuring smooth grid operations, and the proposal is to have the Shivalik Grid BESS System be similarly equipped to enhance dispatchability and maintain system balance. This capability is critical in light of the National Electricity Plan (hereinafter, "NEP") projections, which anticipate a rise in renewable energy share to approximately 35%

of total generation by 2031-32, necessitating flexible resources like BESS to maintain grid stability. BESS support ramping operations in cases where existing conventional plants are unable to ramp up to provide the necessary ramp required to meet the demand. This is further prevalent during the evening hours when solar power quickly recedes, and demand picks up.

- c. Frequency Support/ Ancillary Services: The BESS System can respond quickly to changes in grid frequency. When the grid frequency deviates from its nominal value of 50 Hz, the BESS System can quickly inject or absorb power to help bring the frequency back to its desired level. The rapid response of the BESS System makes it a perfect resource to participate in ancillary service markets, where National Load Despatch Centre (hereinafter, "NLDC") procures services to maintain grid stability.
- d. Participation in Ancillary services markets represents another pivotal benefit realized through the Kilokari BESS, which has successfully completed testing with the NLDC and State Load Despatch Centre (hereinafter, "SLDC") for participation in Secondary Reserve Ancillary Services (hereinafter, "SRAS"). This has unlocked new commercial value streams, enhancing the project's financial viability while contributing to grid stability. The proposed Shivalik Grid BESS System, with its rapid response capability, is ideally suited to participate in Ancillary market, as demonstrated by the Kilokari BESS, which has completed testing for Ancillary participation.
- e. The proposed Shivalik Grid BESS is poised to leverage the operational framework established under the Central Electricity Regulatory Commission's Ancillary Services Regulations, 2022, and the operationalization of Administered SRAS (from December 2023) and Market-based Tertiary Reserve Ancillary Services (hereinafter, "TRAS"). Participation in these markets will enable the proposed BESS System to provide critical grid support services, including frequency regulation and reserve management, thereby enhancing system flexibility in the context of increasing VRE penetration.
- f. Capacity upgrade deferral: Deferring investments in distribution system upgrades (Transformers and other ancillary infrastructure) by deploying the BESS System could be a useful strategy when in a year, the distribution transformers are overloaded only for few instances due to seasonality of load and mostly during the other parts of the year, they remain under-utilized.
- g. Reduction in Allocation of Costly Gas Plants: The Petitioner submits that the proposed BESS System offers significant cost savings by serving as a

peaking resource to minimize reliance on costly gas-based power plants. The Kilokari BESS has demonstrated substantial savings by reducing the need for expensive peaking power, and the proposed Shivalik Grid BESS System is expected to yield similar benefits, bridging the gap between current costs and monetizable benefits. By displacing high-cost gas plants during peak demand periods, the BESS System will reduce both fixed and variable costs, ensuring financial prudence and minimizing tariff impacts on consumers. This value stream aligns with the underlying principle of optimizing resource allocation under Section 61 of the EA, 2003, and supports the broader objective of cost-effective energy procurement in a renewable energy-rich scenario.

- h. Resource Adequacy and Grid Support: With increasing penetration of variable and uncertain Renewable Energy in the grid, it is crucial to have firm capacity resources. BESS, being a firm resource, can help the Petitioner to ensure that they are compliant with regulations, ensuring that there is an adequate supply of power to serve expected peak demand reliably. Furthermore, the proposed BESS System will provide grid support by relieving stress on Delhi Transco Limited (hereinafter, "DTL") feeders and enhancing localized reliability through its islanding capabilities, replicating the Kilokari project's success in improving service quality for consumers.
- i. The IEGC 2023 and the MoP's Resources Adequacy Guidelines, issued on 28.06.2023 under Rule 16 of the Electricity (Amendment) Rules, 2022, mandate distribution utilities to contract a minimum quantum of firm capacity as stipulated in the Long-term National Resources Adequacy Plan (hereinafter "LT-NRAP"). The Petitioner submits that the proposed BESS System, by acting as a firm resource during peak and system stress periods, will significantly bolster the Petitioner's resources adequacy, ensuring reliable power supply to meet the escalating demand in the Shivalik Grid zone.
- j. Backup supply to critical loads: BESS can provide backup supply to critical loads during grid failures through uninterruptible power supply. This is especially crucial for applications that require continuous power, such as hospitals, data centres, emergency services, and other critical infrastructure. When the grid fails, the BESS quickly switches its power supply to the grid from the battery system. This automatic switching ensures a seamless transition and uninterrupted power supply to critical loads. Once the grid power is restored, the BESS system seamlessly and automatically switches back to grid supply mode, ensuring a smooth restoration of normal grid operation.

- k. Carbon Credits: The proposed BESS System will facilitate the integration of renewable energy into the grid, creating potential for monetization through carbon credits by displacing polluting coal and gas-based generation, which often serves as the marginal source during peak demand hours. By charging the BESS System during periods of high renewable energy generation and discharging during peak periods, the Shivalik Grid BESS System will reduce reliance on fossil fuel-based power, contributing to India's climate goals and enabling participation in carbon credit trading mechanisms. The Kilokari BESS has laid the groundwork for such environmental benefits, and the proposed BESS System is expected to enhance this value stream, aligning with the national policy framework to promote clean energy and reduce greenhouse gas emissions.
- l. Locational Benefit: The selection of the identified location for the installation of the BESS System is based on technical, operational, and strategic considerations.

Benefits estimated in the Cost Benefit analysis

- x. The Petitioner estimates a single-part tariff in the form of a capacity charge of INR 0.52 Crore/MW/year for the Shivalik Grid BESS System, which is both technically feasible and commercially sustainable, drawing on the successful tariff discovery process employed for the Kilokari Project. The anticipated benefits are INR 11.50Cr/annum including from ancillary services participation and INR distribution capex deferral, further enhance the project's economic viability, ensuring minimal tariff impact on consumers while delivering substantial system-wide benefits.
- xi. Since the proposed BESS System will be embedded in the Petitioner's distribution network, it will also provide non-monetizable benefits to the system:
 - a. The BESS System, through islanding operation can provide backup power to support the three critical stations connected to Shivalik Grid.
 - b. By being connected to the State Transmission Utility network, it will also provide relief to upstream DTL feeders and the Grid sub-station.
 - c. The introduction of Resource Adequacy Requirements will require the Petitioner to contract firm capacity with high-capacity credit. The BESS System, being a flexible resource has high-capacity credit and will help the Petitioner meet the Resource Adequacy Requirements.
 - d. Introduction of SRAS market will provide a high revenue value stream for BESS. BESS, internationally, predominantly operates in SRAS markets.

- xii. The Petitioner submits that the proposed Shivalik Grid BESS System is not only a logical extension of the Kilkari project's success but also a critical step toward aligning with the Central Electricity Authority's projections of BESS requirements of 8.68 GW/34.72 GWh by 2027-28 and 47.24 GW/236.22 GWh by 2031-32. The deployment of BESS System at Shivalik Grid will strengthen the Petitioner's ability to meet regulatory mandates, support national energy transition goals, and deliver reliable, cost-effective, and sustainable power to its consumers.
- xiii. The Petitioner further submitted that in August 2023, MoP notified the National Framework for Promoting Energy Storage Systems. The key objectives of this framework are to ensure a constant (round the clock) supply of renewable energy, reduce emissions, and lower energy costs by incentivizing ESS deployment while reducing the reliance on fossil fuel power plants. It also seeks to enhance grid stability and reliability through ESS deployment, stimulate innovation in energy storage technologies, and ensure equitable access to energy storage for all segments of the population.
- xiv. The evolving regulatory landscape, coupled with the operational success of the Petitioner's 20 MW/40 MWh BESS at the Kilkari Grid, provides a compelling legal and technical basis for the Commission to grant '*in-principle*' approval for the competitive bidding process for the proposed Shivalik Grid BESS System, as prayed for. In conformity with Clause 4.6 of Resource Adequacy Guidelines issued by the MoP, the Petitioner is endeavouring to develop the proposed BESS project, in line with the competitive bidding process as specified in the Guidelines.

Commission's Analysis

- 3. The instant Petition has been filed by the Petitioner seeking '*in-principle*' approval for the commissioning of a grid scale Battery Energy Storage System (BESS) at 33/11 Kv Shivalik Grid and to conduct a Competitive Bidding process for the installation and setting-up of the BESS System in compliance with the bidding requirements as set out in the 'Guidelines for Procurement and Utilization of Battery Energy Storage System as part of Generation, Transmission and Distribution assets, along with Ancillary Services' notified by the Ministry of Power (hereinafter, "MoP") on 10.03.2022 under Section 63 of the EA, 2003 (hereinafter, "BESS Guidelines").
- 4. It has been observed that the Petitioner proposes to conduct the bidding process in terms of the BESS Guidelines and no deviation from the same is being sought by the Petitioner.
- 5. The matter was heard and reserved for Orders on 06.08.2025.

6. A meeting was conducted by the Officers of the Commission with the Petitioner on 19.09.2025 wherein certain queries were raised. The Petitioner vide its letter dated 22.09.2025, submitted response to the queries *inter-alia* providing the reason for proposing 2-hours BESS instead of 4-hours BESS as following:

- a. A cumulative requirement of BESS on a normative 4-hour basis can be effectively met through a prudent mix of 4-hour and 2-hour systems.
- b. As per MOP, CEA's "Advisory on co-locating Energy Storage Systems with Solar Power Projects" dated 18th Feb 2025, all state utilities are advised to incorporate minimum of 2-hours Energy Storage Systems (ESS) as it helps in mitigating intermittency issues and provide critical support during peak demand periods.
- c. 2-hour BESS is adequate for peak shaving, demand variability management, frequency response, and congestion relief at the distribution level, while longer-duration assets (4-hour and above) provide system-level firming, evening peak coverage, and flexibility during extended low renewable generation periods.
- d. The Petitioner has also provided Rationale for Delhi Specific BESS for proposing 2-hours BESS instead of 4-hours BESS.

Further, the Petitioner has submitted the Year-wise input quantum (MU) including the generation from current proposal with trajectory up to 2035-36.

7. The aforesaid submissions of the Petitioner have been examined and it is observed that:

- i. BESS has now become an integral component of grid planning and operations. Unlike passive resources like transformers, BESS is an active and smart resource, operating both as a load and source of generation, increasing grid reliability, quality of supply and reducing power procurement costs.
- ii. Several utilities across India have initiated competitive bidding processes for grid-scale BESS, yielding competitive tariffs. The Petitioner has itself successfully commissioned a 20 MW/40 MWh BESS at the 33/11 kV Kilokari Grid, at a monthly capacity charge of INR 4.8 lakhs/MW/month (excluding GST). Similarly, the Gujarat Urja Vikas Nigam Limited (hereinafter, "GUVNL") has progressively reduced tariffs in its Phase – 2 and Phase – 3 BESS procurements to INR 4.49 lakh/MW/month and INR 3.72 lakh/MW/month, respectively. Also Rajasthan Rajya Vidyut Utpadan Nigam Limited has installed a 500 MW/1000 MWh Standalone Battery Energy System, which has been approved by the Ld. Rajasthan Electricity Regulatory Commission vide its Order dated 17.06.2025 in Petition No. 2302 of 2025.

- iii. The proposal of the Petitioner for the commissioning of a grid scale 12.5 MW/25MWh BESS at 33/11 KV Shivalik Grid will be helpful for Capacity upgrade deferral, Peak demand reduction, Energy Arbitrage, Ramping support, Resource Adequacy and Grid Support, Backup supply to critical loads through islanding operation, Carbon Credits.
 - iv. The instant proposal is also having additional locational Benefit due to increasing demand and renewable energy penetration in the Shivalik Grid area, which has witnessed an annual peak demand compound annual growth rate of 5.42% over the past six years. This system is expected to serve approximately 82087 consumers and deliver multifaceted benefits.
 - v. As per the preliminary results of the RA study shared by CEA for the Petitioner capacity addition of 281 MW corresponding to 4-hour Battery Storage is envisaged, however in the said proposal the Petitioner has proposed 2-hour battery storage by FY 2028-29. In this regard it is observed that Ministry of Power, Govt. of India through letter no.F.No.48-6/44/2025-NRE SECTION dated 01.10.2025 has directed following:

“...the States may implement the BESS project in 2-hour/4-hour configuration while retaining the contractual right to utilize at least 6300 cycles of the BESS during the contract period.”
 - vi. Further, taking into account the nature of this project, where the Petitioner is not investing any CAPEX and the Petition for approval of the BESS Agreement is part of the power procurement process of the Petitioner, any financial benefits from this project will be transferred to the consumers of the Petitioner as a net offset in the power purchase cost of the Petitioner in the ARR.
 - vii. The Petitioner has submitted that it has estimated a single-part tariff for ESS, which shall be primarily discovered through competitive bidding process under section 63 of the Electricity Act, 2003. Further, a conservative techno-economic assessment indicates that the proposed 12.5 MW/25 MWh BESS is expected to yield annualized levelized benefits of approximately INR 11.50 Crores including from ancillary services participation and INR distribution capex deferral, over its 12-year operational life. These benefits are incremental to the systemic advantages of increased renewable energy absorption, fuel cost savings, and improved consumer reliability. This further enhances the project's economic viability, ensuring minimal tariff impact on consumers while delivering substantial system-wide benefits.
8. Based on above, the approval is hereby accorded to the Petitioner to initiate a competitive bidding process for the proposed BESS in accordance with Section 63 of the EA, 2003; and MOP BESS Guidelines, 2022 without any deviation.

9. Further, the Petitioner is directed to comply with all the applicable requirements, specifically under Section-III of the BESS Guidelines, to formulate and administer the bidding process, conduct the bidding in a fair, transparent, and competitive manner, and submit the finalized BESS Agreement and discovered tariff for approval and adoption by this Commission.
10. However, the adoption of the lowest prices for BESS as per competitive bidding shall be evaluated by the Petitioner for the reasonableness and justification. The Petitioner will take the approval of DERC for the lowest prices before entering into the contract with the selected bidders.
11. The Petition is disposed of in the above terms.
12. Ordered accordingly.

S/d
(Surender Babbar)
Member

S/d
(Ram Naresh Singh)
Member