To,
The Secretary
Central Electricity Regulatory Commission
6th, 7th and 8th Floor, World Trade Centre, Tower B, Nauroji Nagar, New Delhi – 110029
Email: secy@cercind.gov.in; shilpa@cercind.gov.in

Subject: Comments on the draft Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Second Amendment) Regulations, 2026 — No. L-1/265/2022/CERC dated 21.09.2026 — the provisions relating to Energy Storage Systems

Sir / Madam,

1. I offer the following comments on the draft Second Amendment, in response to the Public Notice dated 21 September 2026. They are confined to the provisions concerning Energy Storage Systems. I have no commercial interest in any generator, developer, supplier, licensee or financier, and take no fee, commission or consideration from any party in this field.

Comment 1: the droop setting proposed for an Energy Storage System is stated three different ways in the papers now before the Commission

2. Clause 10 of the draft amends sub-clause (g) of Clause (10) of Regulation 30 by three insertions: the words “and Energy Storage Systems (ESS)” after “All the generating units”; the words “and ESS (excluding Pumped Storage Plant)” after “WS Seller”; and the words “and Pumped Storage Plant” after “(for hydro generating units”. Read into the principal provision, the amended sub-clause would require a droop of 3 to 6 per cent for thermal generating units, WS Sellers and ESS excluding Pumped Storage Plant, and 0 to 10 per cent for hydro generating units and Pumped Storage Plant. A Battery Energy Storage System therefore falls in the 3 to 6 per cent band.

3. The Explanatory Memorandum states the opposite. At paragraph 12.4 it records that NLDC has proposed a droop setting of 0 to 10 per cent for energy storage systems, NLDC’s suggested text having placed ESS in the same bracket as hydro generating units. At paragraph 12.6 the Commission states that the droop settings for ESS as proposed by NLDC are proposed to be incorporated in the Regulations. The operative text at clause 10 does not do that.

4. The sub-clause closes with the words “as specified in the CEA Technical Standards for Connectivity”, and the Explanatory Memorandum sets out the relevant provisions of the draft Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2026 at paragraph 12.5. In that draft, Regulation 89 and Table 4 thereunder apply Regulations 45 to 88 to a BESS. Regulation 75(3), which falls in that range, requires a frequency controller with a settable droop of 1 to 6 per cent of ICR.

5. The same asset is therefore given three different figures: 0 to 10 per cent in the Explanatory Memorandum, 3 to 6 per cent in the operative text of the draft, and 1 to 6 per cent of ICR in the instrument to which that text defers.

6. I respectfully suggest that the Commission state expressly which figure is intended for an Energy Storage System other than a Pumped Storage Plant, and align the operative text with the Explanatory Memorandum and with the CEA draft when it is finalised. A droop setting is a commissioning parameter. Where three instruments give three answers, the question is settled on site rather than in the Regulations.

Comment 2: the minimum size entry for ESS in Table 4 does not match the provision it refers to

7. Clause 10(4) of the draft adds two rows to Table 4 under sub-clause (h) of Clause (10) of Regulation 30. The row for Pumped Storage Plant reads “25 MW and above”. The row for Energy Storage System (except Pumped Storage Plant) reads:

> “Energy Storage System (except Pumped Storage Plant) | 10 MW and connected at 33 kV and above | As per CEA Technical Standards for Connectivity”

8. Two points arise. First, the words “and above” appear after the figure in the Pumped Storage Plant row but not in the ESS row, which reads “10 MW and connected at 33 kV and above”. On a literal reading the qualification of capacity is left incomplete. The Explanatory Memorandum at paragraph 12.3 reproduces NLDC’s proposal as “10 MW and above connected at 33 kV and above”.

9. Second, the column that follows refers the requirement to the CEA Technical Standards for Connectivity. Regulation 75 of the CEA draft of 31 July 2026 applies to a generating station with installed capacity of more than 10 MW connected at a voltage level of 33 kV and above. A storage system of exactly 10 MW would fall within the row as drafted but outside the provision to which the row defers.

10. I respectfully suggest that the words “and above” be inserted after “10 MW”, and that the threshold be expressed so that it coincides with the corresponding provision of the CEA Technical Standards for Connectivity as finally notified.

Comment 3: the trial-run provisions proposed for storage are framed for a standalone ESS, and the draft does not say how they apply to storage that forms part of a generating station

11. Clause 5(5) of the draft inserts the words “(excluding Pumped Storage Plant)” in sub-clause (e) of Clause (3) of Regulation 22, and clause 5(6) adds four provisos to that sub-clause. The first three are expressed to apply to a “standalone ESS”: a minimum aggregate capacity of 50 MW for the trial run; instalments for a standalone ESS of more than 50 MW and less than 250 MW; and the position of a standalone ESS of less than 50 MW covered by Regulation 4.1(e) or (f) or Regulation 4.4 of the GNA Regulations. The fourth provides for instalments “in the case of a project having a capacity of 250 MW or more”, and the Explanatory Memorandum at paragraph 6.6 describes it as applying to a standalone ESS. Sub-clause (e) itself, as reproduced at paragraph 6.1 of the Explanatory Memorandum, defines a successful trial run of “a standalone Energy Storage System (ESS)”.

12. The principal Regulations reach storage that forms part of a generating station only indirectly. A Renewable Energy Generating Station is defined as one based on a renewable source “with or without Energy Storage System”, and a Renewable Hybrid Generating Station as one based on two or more renewable sources, with or without an Energy Storage System, connected at the same inter-connection point (Regulation 3(1), Sr. Nos. 105 and 106). Sub-clause (g) of Clause (3) of Regulation 22 provides that a successful trial run of a hybrid system means a successful trial run of each individual source of the hybrid system in accordance with the applicable provisions of the Regulations. For a storage component, the only provision on the trial run of an ESS is sub-clause (e), which defines the trial run of a standalone ESS; the first three provisos now proposed are expressed for a standalone ESS, and the fourth, though not in terms so confined, sits in a sub-clause framed around the standalone case and is read that way by the Explanatory Memorandum. The draft

does not say whether sub-clause (e) and the new provisos are the applicable provisions for the storage component of a hybrid station. Nor does it say how a solar or wind plant with storage that is not a hybrid of two renewable sources is to be treated, since sub-clause (g) speaks of a hybrid system. Neither the word “co-located” nor the word “hybrid” appears in the draft amendment.

13. The matter is not academic. The draft Central Electricity Authority (Technical Standards for Construction of Electric Plants and Electric Lines) 2nd Amendment Regulations, 2026 (F. No. CEA-TH-17/1/2021-TETD Division, dated 3 September 2026), on which comments were invited until 4 October 2026, proposes, by the first proviso to Regulation 106B(20), to require ground-mounted solar and on-shore wind plants commissioned after 1 July 2027 to carry a co-located energy storage system of at least two hours’ duration and ten per cent of installed capacity; its Explanation gives 10 MW for a 100 MW solar plant. If that requirement is notified, storage forming part of a solar or wind plant will be the ordinary case rather than the exception. A storage component of 10 MW would fall below the minimum aggregate capacity of 50 MW in the first proviso now proposed, if that proviso applied to it; whether it does is the question the draft leaves open. The draft CEA Technical Standards for Connectivity of 31 July 2026 already define a “Co-located generating station” at Regulation 2(xi) as two or more generating stations, including energy storage systems, operated and controlled as a separate facility and connected behind a single Point of Interconnection.

14. I respectfully suggest that the final Regulations state, for storage that forms part of a generating station, (a) which provisions of Clause (3) of Regulation 22 are the applicable provisions for its trial run, including whether the minimum-capacity and instalment provisos proposed for a standalone ESS apply to it; and (b) whether sub-clause (g) extends to a solar or wind plant with storage that is not a Renewable Hybrid Generating Station.

Comment 4: the instalments allowed for a standalone ESS do not match what the Explanatory Memorandum says was intended

15. The second proviso proposed by clause 5(6) provides that, for a standalone ESS of more than 50 MW and less than 250 MW, the trial run for the balance capacity shall be performed in a maximum of three instalments with a minimum capacity of 5 MW. The Explanatory Memorandum at paragraphs 6.5 and 6.6 states that the provisions for the trial run of an ESS are proposed in line with the provisions applicable to solar generating stations, and records that the trial run of solar inverter units up to 250 MW can be carried out in a maximum of five instalments, being a first instalment of 50 MW and the balance in four. Regulation 22(3)(a) of the principal Regulations allows the balance in a maximum of four instalments. The proposed text gives storage three.

16. I respectfully suggest that the number be corrected to four if parity with solar was intended, or that the Commission record why storage is treated differently.

Comment 5: the hour at which energy discharged from co-located storage is deemed generated remains unaddressed, and the rule for metering it sits in a procedure rather than in the Regulations

17. The new Regulation 25A proposed by clause 7 governs the scheduling of infirm power before the declaration of commercial operation, and applies in terms to a “generating station or ESS”. Where a plant and its co-located storage sit behind a single Point of Interconnection, nothing in the proposed Regulation distinguishes energy that passed through the storage from energy that did not.

18. The same question arises more generally. Neither this draft nor, so far as I have been able to trace, any instrument of the Authority or the Commission states at which hour energy discharged from co-located storage is deemed generated for the purposes of scheduling, metering and energy accounting. I have made a submission on that question to the Central Electricity Authority on 16 September 2026, supplemented by notes dated 22 and 25 September and 3 October 2026, in the proceedings on F. No. CEA-TH-17/1/2021-TETD. The Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, as amended up to 1 April 2026, fix the location of interface meters by stage in Table-1 under Regulation 7(1)(a), which contains no entry for an energy storage system or for a co-located facility; Regulation 205 of the draft Connectivity Standards refers the metering of such a facility back to those Regulations.

19. The metering of co-located storage is, however, addressed at the level of procedure. Annexure-XI to the NLDC Operating Procedure 2026, dated 19 August 2026 and prepared in compliance with Regulation 28(3) of the Grid Code, sets out a procedure for scheduling, metering, accounting and deviation settlement of energy storage systems. Part B of that Annexure provides that each generator and each ESS shall be metered with an Interface Energy Meter so that its individual injection and drawal can be captured; that where the storage obtains its charging power entirely from the co-located renewable plant, the meter may be installed at the sub-pooling or pooling station end; and that where AC- or DC-coupled storage is to draw power from the grid for charging, each generator and each ESS shall be separately metered. The Commission's own Regulations already turn on the same distinction: the first proviso to Regulation 13(2)(b)(ii) of the Sharing of Inter-State Transmission Charges and Losses Regulations, 2020, in the form substituted by the Fourth Amendment dated 26 June 2025, permits a Battery ESS covered by Sl. No. 1 of Table 2 to charge from the grid under contingency only up to ten per cent of its annual charging requirement, which depends on separating energy drawn from the grid from energy drawn from the co-located plant.

20. The hardware consequence follows from the Authority's own Meters Regulations. A "meter" includes the instrument transformers necessary for the purpose of measurement (Regulation 2(1)(p)). An interface meter must be of accuracy class 0.2S, and the accuracy class of its instrument transformers must not be inferior to that of the meter (Schedule, Part I, paragraphs (2) and (6)(a)); the main and check meters are connected to the same core of the instrument transformer (Part II, paragraph (1)(j)); and the scheme for the location of interface meters is to be submitted in advance, before installation (Regulation 7(1)(b)). A separate interface meter at the storage feeder therefore means instrument transformers of that class at that feeder. As a practitioner has put it to me, in general terms from practice and not as a finding of my own, the metering scheme should be approved early, at the single line diagram and connectivity stage, before the current and voltage transformers and meters are ordered, because their accuracy class and location depend on it; in practice, final verification, sealing of meters and integration with AMR and SCADA tend to be left until close to first charging, and late submission of the scheme is a common cause of delay in energisation.

21. I respectfully suggest that the final Regulations (a) state the hour at which energy discharged from co-located storage is deemed generated; (b) carry into the Grid Code itself the metering rule now set out in Part B of Annexure-XI to the NLDC Operating Procedure 2026, so that separate metering of co-located storage that may charge from the grid is a requirement of the Regulations and is known at the design stage; and (c) apply that rule to energy scheduled under the proposed Regulation 25A before the declaration of commercial operation. In the alternative, I suggest that the

Commission record where and by when these questions will be settled.

22. I would be glad to provide copies of any of the instruments cited if that is of use to the Commission.

Yours faithfully,

D. S. Nikam
Independent research — energy storage and power markets
B-01, Aurum Elementto, Porwal Road, Lohegaon, Pune 411047, Maharashtra
research@dsnikam.in · dsnikam.in · 7378780745
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Annex — instruments cited

– Draft CERC (Indian Electricity Grid Code) (Second Amendment) Regulations, 2026 — No. L-1/265/2022/CERC dt 21.09.2026 — clauses 5(5), 5(6), 7 and 10(1) to 10(4).

– Explanatory Memorandum to the said draft, dt 21.09.2026 — paragraphs 6.1, 6.5, 6.6, 12.1, 12.3, 12.4, 12.5 and 12.6.

– CERC (Indian Electricity Grid Code) Regulations, 2023 — Regulation 3(1), Sr. Nos. 105 and 106; Regulations 22(3)(a), 22(3)(e), 22(3)(g), 28(3) and 30(10)(g) and Table 4 thereunder.

– CERC (Sharing of Inter-State Transmission Charges and Losses) (Fourth Amendment) Regulations, 2025 — No. L-1/250/2019/CERC dt 26.06.2025 — Regulation 13(2)(b)(ii), Table 2 and the first proviso thereunder.

– NLDC Operating Procedure 2026, Grid Controller of India Limited, dt 19.08.2026 — paragraph 12.8 and Annexure-XI, Parts A and B.

– Draft CEA (Technical Standards for Connectivity to the Grid) Regulations, 2026 — public notice dt 31.07.2026, comments closed 02.09.2026 — Regulations 2(xi), 75 (including 75(3)), 89 and Table 4, and 205.

– Draft CEA (Technical Standards for Construction of Electric Plants and Electric Lines) 2nd Amendment, Regulations, 2026 — F. No. CEA-TH-17/1/2021-TETD Division dt 03.09.2026 — proposed Regulation 106B(20).

– CEA (Installation and Operation of Meters) Regulations, 2006 — Notification No. 502/70/CEA/DP&D dt 22.03.2006, as amended in 2010, 2014, 2019 (No. CEA-GO-13-15/3/2019-DPR Division dt 23.12.2019), 2022 (No. CEA-GO-13-15(12)/1/2022-DPR Division dt 28.02.2022) and 2026 (F. No. 1/12/CEA/DPM/Regulations/2025 dt 01.04.2026; Corrigendum dt 10.04.2026, Gazette No. 260) — Regulation 2(1)(p); Regulation 7(1)(a) and Table-1 thereunder, and 7(1)(b); Schedule, Part I, paragraphs (2) and (6)(a), and Part II, paragraph (1)(j).

– CERC (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022 — Regulations 4.1 and 4.4, as referred to in the proposed provisos to Regulation 22(3)(e).