Electricity Engineers' Association

Level 5, 40 Mercer Street
PO Box 5324
Wellington, New Zealand
Telephone: (04) 473 8600
Web: www.eea.co.nz

To: Electricity Authority (EA)
OperationsConsult@ea.govt.nz

From: Electricity Engineers' Association of NZ

Date: 14 November 2025

Subject: EEA Submission – Consultation Paper - *Emergency Reserve Scheme Code Amendment Proposal*

OVERVIEW

The Electricity Engineers' Association (EEA) welcomes the opportunity to comment on the Electricity Authority's *Emergency Reserve Scheme – Code Amendment Proposal (17 October 2025).*

The EEA represents members across New Zealand's electricity supply chain — including Transpower, electricity distribution businesses (EDBs), generators, retailers, contractors, and consultants — who collectively build, operate, and maintain the assets that underpin New Zealand's electricity reliability and resilience.

EEA supports the introduction of an Emergency Reserve Scheme (ERS) as a targeted, last-resort ancillary service designed to avoid involuntary load shedding during rare, short-duration supply–demand imbalances.

EEA supports the introduction of an Emergency Reserve Scheme (ERS) as a targeted, last-resort ancillary service designed to avoid involuntary load shedding during rare, short-duration supply–demand imbalances.

The proposed framework, if well integrated with existing reliability mechanisms and demand-side flexibility initiatives, will materially improve system resilience, promote efficient reliability investment, and deliver tangible benefits to consumers.

However, EEA stresses that the success of the ERS will rely on:

- strong operational coordination between Transpower (as System Operator), distribution networks, and aggregators
- a clear and transparent definition of activation triggers and decision thresholds; and
- ongoing monitoring and evaluation to ensure the ERS complements — rather than substitutes for — investment in flexibility, capacity, and resilience.

Summary of EEA's Key Positions

The EEA views the ERS as a penultimate-resort reliability mechanism, bridging the gap between commercial market responses and involuntary load shedding. It should operate only after all other market-based and controllable-load options have been exhausted. The following principles underpin the EEA's support:

1. System Reliability and Resilience

The ERS should be embedded within the broader system-reliability framework governed by Transpower's Security of Supply Standard and the EEA's Resilience Guide. It provides an important operational buffer, helping to manage transient but critical shortfalls in supply without resorting to consumer disconnection.

2. Integration within the Ancillary-Services Framework

The ERS must be fully aligned with Transpower's existing ancillary-service arrangements — including procurement, performance monitoring, and post-event reporting — to maintain consistency, efficiency, and transparency across reliability tools.

3. Coordination with Distribution Networks

Formal coordination and information-exchange protocols should be established between Transpower, EDBs, and aggregators to ensure ERS activation does not conflict with network management, controllable-load operation, or local safety systems. This will become increasingly important as distributed flexibility grows.

4. Enablement of Demand-Side Participation

The scheme should actively enable participation by large industrials, aggregators, and distributed energy resources (DERs), provided participation is demonstrably additional to existing controllable-load or contractual demand-response arrangements. This will help build long-term flexibility capability across the sector.

5. Governance and Continuous Improvement

EEA supports creating a joint ERS Implementation and Review Group — comprising the Electricity Authority, Transpower, EEA, ENA, and participant representatives — to oversee implementation, performance evaluation, and future refinement.

6. Staged Implementation and Proportionate Design

EEA agrees with the proposed Minimum Viable Product (MVP) for winter 2026, followed by full implementation in 2027+. This pragmatic approach will allow participants, the System Operator, and networks to gain experience and refine processes before full-scale rollout.

7. Consumer Benefit and Efficiency

EEA agrees with the Authority's analysis that the ERS provides a net benefit to consumers. The projected $21 million benefit identified by Concept Consulting is likely conservative, as it does not fully capture avoided outage costs, reputational impacts, or the long-term value of improved system coordination and learning.

In summary, the EEA supports the Authority's proposal as a practical, proportionate, and forward-looking enhancement to New Zealand's reliability framework.

The ERS will strengthen operational resilience, build flexibility capability across the industry, and improve consumer confidence — provided its implementation remains technically grounded, well-coordinated, and integrated within existing reliability systems.

Responses to Consultation Questions

Q1. Do you support the Authority's proposal to amend the Code to establish an Emergency Reserve Scheme?

Yes, the EEA in principle supports the proposal. The ERS addresses a clear reliability gap between market-based demand and involuntary load shedding.

The Authority's consultation correctly identifies the need for a mechanism to manage short-term peak scarcity events where other ancillary services (e.g., reserves, black start) do not apply.

The proposed scheme can:

- Improve short-term operational resilience by providing Transpower an additional lever before AUFLS or under-frequency events occur.
- Encourage demand-side capability development, which aligns with long-term flexibility goals.
- Provide a transparent, market-based reliability instrument, avoiding ad hoc interventions.

EEA emphasises that the ERS should remain a last resort but well-integrated reliability mechanism, explicitly coordinated through the System Operator's operational hierarchy and System Security Standard.

Q2. Do you have any comments on the drafting of the proposed amendments?

The drafting is clear and provides a solid foundation for implementation. However, several refinements would improve alignment, readability, and operational workability across the Code and System Operator documents.

First, Schedule 8.3 (Technical Code B) should include an explicit reference to coordination and notification between Transpower and distribution network operators whenever emergency reserves are activated. This would ensure that system-level actions taken by the System Operator do not inadvertently affect local network safety or stability, especially where ERS resources are embedded within distribution systems.

Second, the proposed Clause 8.54BA (Post-event reporting) could be strengthened. Beyond the publication of costs and utilisation data, post-event reports should analyse network and consumer impacts, assess provider performance, and summarise operational lessons learned. Such feedback loops are critical to continuous improvement and will support integration of ERS learning into future flexibility and resilience planning.

Third, the definition of "emergency-reserve provider" should explicitly capture both aggregated demand-side resources and behind-the-meter generation or storage. This will provide clarity and ensure consistency with the Authority's Industrial Flexibility Roadmap and the emerging Distribution System Operation (DSO) framework.

Finally, the Procurement Plan provisions under Clauses 8.43–8.45 should be clarified so that activation, measurement, and verification requirements for ERS align with those already in use for other ancillary services. This will reduce duplication, maintain technology-neutrality, and support efficient market administration.

Together, these refinements would deliver a more integrated, transparent, and practicable Code amendment—supporting the Authority's intent while ensuring smooth interoperability with existing market and network reliability arrangements.

Q3. Do you consider any further Code amendments are required to establish the scheme as outlined in Section 5?

Yes. While the proposed drafting covers most of the necessary elements, EEA recommends two complementary additions that would embed stronger coordination and visibility across system and distribution levels.

The first is a Distribution Coordination Clause, requiring the System Operator to consult or notify affected EDBs whenever it contracts or activates ERS resources connected to their networks. This ensures that ERS dispatch does not conflict with local network operations, planned outages, voltage

management, or safety procedures. Such coordination is essential as more controllable load, distributed generation, and storage devices participate in flexibility markets.

The second is an Information-Sharing Provision to allow secure and proportionate exchange of data between Transpower, EDBs, and aggregators for the purposes of verifying performance and auditing ERS events. This should be framed within existing privacy and cybersecurity safeguards and designed to complement, not duplicate, emerging industry data standards such as EIEP 14 and the Authority's Network Visibility initiative.

Together, these two amendments would create the necessary connective tissue between the ERS and the wider reliability ecosystem—ensuring that emergency-reserve actions taken at grid level reinforce, rather than interfere with, the reliability and resilience work occurring at distribution and consumer levels.

Q4. Do you see any unintended consequences in making the proposed amendments?

While the proposed amendments are well structured, there are a few potential unintended effects that should be anticipated and actively managed through scheme design and governance.

The first relates to over-reliance on the ERS as a routine operational tool. If activated too frequently or for extended periods, it could inadvertently reduce incentives for participants to invest in permanent flexibility, on-site storage, or generation capacity. The Authority's design intention for the ERS—as a penultimate-resort reliability measure—must therefore be clearly maintained, with strict activation thresholds and transparent post-event reviews to confirm it is only used in exceptional circumstances.

A second risk concerns conflicting control actions between the ERS and local network operations. Many EDBs already manage significant controllable load and distributed energy resources through load-control and voltage-management systems. Without coordination, simultaneous actions by Transpower and EDBs could cause local voltage instability, consumer complaints, or even safety hazards. Clear communication protocols between the System Operator, EDBs, and ERS providers—particularly at activation and restoration stages—will mitigate this risk.

A third possible consequence is distortion of market price signals. If ERS activation regularly suppresses scarcity pricing, it could mask underlying capacity constraints and weaken investment signals. EEA therefore supports the Authority's proposed "add-back" mechanism, which restores scarcity pricing to ensure that investment incentives remain intact.

Finally, the EEA notes the potential for administrative duplication between ERS verification requirements and existing demand-response or ancillary-service arrangements. This can be minimised by aligning telemetry and measurement protocols with the EIEP14 modular data framework and existing ancillary-service standards.

In short, none of these risks are fatal to the proposal—but each warrants active management through governance, coordination, and design clarity.

Q5. Do you agree with the objective of the proposed amendment? If not, why not?

Yes. The EEA strongly agrees with the Authority's stated objectives: to maintain system security and reliability by avoiding uneconomic load shedding, and to encourage the development and use of demand flexibility. Both are fully consistent with the Authority's statutory purpose under section 15 of the Electricity Industry Act and align closely with EEA's own mission of supporting engineering excellence and system resilience.

From an engineering and operational perspective, the ERS will play an important role in:

- Enhancing system resilience, by providing Transpower with a structured reliability lever that can be deployed before involuntary disconnection is required. This helps manage rare but high-impact events, improving security of supply without resorting to emergency measures that disrupt consumers.
- Building demand-side capability, by giving large industrial users and aggregators a pathway to participate in reliability services under real operational conditions. This will accelerate the sector's learning on flexibility, telemetry, and verification—all essential for future flexibility markets.
- Strengthening consumer confidence, by reducing the frequency and severity of load-shedding events that can undermine public trust in electrification.

EEA suggests that the objectives could be expressed more explicitly within the Code or supporting documents to reinforce their linkage to Transpower's Security of Supply Standard and to Flexforums Flexibility plan. This would ensure consistency between reliability management and the broader transition toward a more flexible, consumer-responsive electricity system.

Overall, the EEA considers the objectives to be clear, appropriate, and well targeted. The proposed amendment strikes a sound balance between short-term reliability enhancement and long-term flexibility development—delivering value to consumers while maintaining a strong engineering and operational foundation for system security.

Q6. Do you agree the benefits of the proposed amendment outweigh its costs?

Yes. The EEA agrees that the expected benefits of establishing an Emergency Reserve Scheme (ERS) outweigh its costs, both in quantitative and qualitative terms. The Concept Consulting cost-benefit

analysis demonstrates a positive net benefit of approximately $21 million, but in our view this likely understates the full value of the scheme once broader resilience and consumer-confidence effects are considered.

Quantified benefits include the avoidance of involuntary load shedding during brief supply shortfalls, lower direct economic losses from outages, and more efficient use of existing flexible resources. These benefits directly improve productivity and consumer welfare while strengthening public trust in the electricity system.

Unquantified but material benefits extend further:

- Resilience: Each avoided emergency event reduces reputational, social, and economic disruption, particularly to critical services.
- Capability building: Industrial participants and aggregators gain experience providing verified demand-side response, accelerating market readiness for future flexibility services.
- System learning: Regular post-event analysis will deepen operational understanding of demand-side behaviour under stress, supporting better future planning and investment.

On the cost side, implementation expenses are expected to be modest. The scheme leverages existing ancillary-service procurement and settlement processes, limiting administrative overhead. Competitive tendering and staged implementation further ensure proportionality and value for money.

Overall, EEA considers the proposal to deliver a high reliability return for a relatively low administrative and financial cost, making it a cost-effective enhancement to New Zealand's reliability framework.

Q7. Do you agree the amendment is preferable to the other options?

Yes. Among the options assessed by the Authority, the proposed ERS provides the most balanced and cost-effective pathway to improving short-term reliability and supporting demand-side flexibility development.

Option	Assessment
Status quo – continue relying on involuntary load shedding	Inefficient and socially disruptive. Load shedding imposes large costs on consumers and businesses, erodes trust, and provides no learning about flexibility capability.
Government-funded reserve generation capacity	Capital-intensive and inflexible. Would shift costs to taxpayers, risk stranded assets, and conflict with the competitive-market framework.
Emergency Reserve Scheme (as proposed)	Market-based, technology-neutral, and scalable. Encourages flexibility participation, complements existing ancillary services, and can evolve with system needs.

The ERS is therefore clearly preferable. It strengthens system resilience at minimal cost, maintains price-signal integrity through the Authority's "add-back" mechanism, and enables innovation on both sides of the meter. It also aligns with *section 15* of the Act by promoting efficient, reliable, and competitive operation of the electricity industry for the long-term benefit of consumers.

Q8. Do you agree the Authority's proposed amendment complies with section 32(1) of the Act?

Yes. The EEA considers the proposed Code amendment to fully satisfy the requirements of section 32(1) of the Electricity Industry Act 2010.

- **Clarity of objectives:** The purpose—to maintain security of supply and avoid uneconomic curtailment—is explicit and well justified.
- **Net public benefit:** Quantified and qualitative evidence confirms a positive benefit–cost ratio, with additional resilience and consumer-confidence benefits not fully captured in monetary terms.
- **Consideration of alternatives:** The Authority has examined and discounted other approaches, demonstrating that the ERS delivers greater efficiency and flexibility.

- **Proportionality and practicality:** Implementation is incremental, using existing processes and governance structures to ensure minimal disruption.
- **Consistency with the Act's purpose:** The ERS promotes efficient, reliable, and safe operation of the electricity industry and protects small-consumer interests through reduced outage risk.

The amendment also satisfies the consultation and procedural requirements of *section 17(1)* and the Code-amendment principles in Schedule 2. The EEA therefore agrees the proposal is compliant, proportionate, and firmly aligned with both the Authority's statutory objectives and the sector's broader reliability and flexibility goals.

Summary of EEA Recommendations

Theme	Recommendation
System reliability & resilience	Position ERS as a penultimate-resort reliability mechanism; integrate with EEA Resilience Guide and Transpower security processes.
Ancillary-service integration	Apply consistent procurement, settlement, and reporting arrangements with other ancillary services; periodic performance evaluation.
Demand flexibility & additionality	Enable industrial and aggregated DER participation, ensuring responses are additional to existing load-control contracts.
Network coordination	Mandate Transpower–EDB coordination during ERS procurement and activation; reference ENA Common Load Management Protocol.
Information sharing	Establish secure data-exchange protocols between Transpower, EDBs, and aggregators for verification and post-event analysis.
Governance & oversight	Create an ERS Implementation & Review Group (EA, Transpower, EEA, ENA, EDB reps, participant reps).
Cost recovery	Maintain national purchaser-based allocation; ensure activation prices ≤ VoLL.

Theme	Recommendation
Implementation	Stage introduction: Minimum viable product by winter 2026, full implementation 2027+; publish annual performance and learning report.

The EEA strongly supports the Electricity Authority's proposal to amend the Code to establish an Emergency Reserve Scheme. It provides a low-cost, high-impact addition to New Zealand's reliability toolkit, bridging the gap between routine flexibility and emergency disconnection.

The EEA emphasises that effective delivery will require:

- operational coordination between Transpower and distribution networks,
- transparent post-event reporting, and
- strong alignment with system resilience and demand-flexibility programmes already underway.

We look forward to working with the Authority and Transpower to ensure a smooth and effective implementation.

Contact

The EEA's contact person for this submission is Dr Stuart Johnston, Lead Advisor Engineering & Technical [redacted] or [redacted]