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Electricity Authority
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Re: Establishing an Emergency Reserve Scheme – Consultation paper

Counties Energy Limited (**CEL**) welcomes the opportunity to comment on the Electricity Authority's (**EA's**) consultation on the Establishing an Emergency Reserve Scheme – Consultation paper.

As previously submitted[1], CEL does not support establishing an Emergency Reserve Scheme (**ERS**) to incentivise greater Demand Response (**DR**) uptake or DR capability investment. If the ERS is pursued on this basis, we consider this will risk distorting price signals, which will create a 'missing money' problem in current markets. However, CEL does agree with developing an Emergency Reserves Scheme (**ERS**) as a 'penultimate resort' option to address uneconomic (or involuntary) load shedding that currently occurs during emergency events.[2]

We acknowledge that both the System Operator (**SO)** and the EA consider there to be peak demand management issues in the coming years, as indicated in Transpower's 2025 Security of Supply Assessment (**SOSA**).[3] While this reinforces the need to consider improvements to how our current system manages emergency events, this does not imply there is inefficient DR in the system. We also note DR levels can be insufficient but efficient, such as when it is uneconomic for a consumer to participate in DR (e.g. when DR price less DR cost < customer's VoLL).

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[1] Counties Energy, Rewarding industrial demand flexibility – Issues and options paper. 3 July 2025. https://www.ea.govt.nz/documents/7885/Counties_Energy_-_TF2D_submission.pdf

[2] Note: The EA defines 'emergency events' as 'uneconomic' load shedding where electricity supply is cut to consumers who would have been willing to pay a price higher than spot market prices (or, scarcity prices) and below Value of Lost Load (VoLL) to avoid an outage.

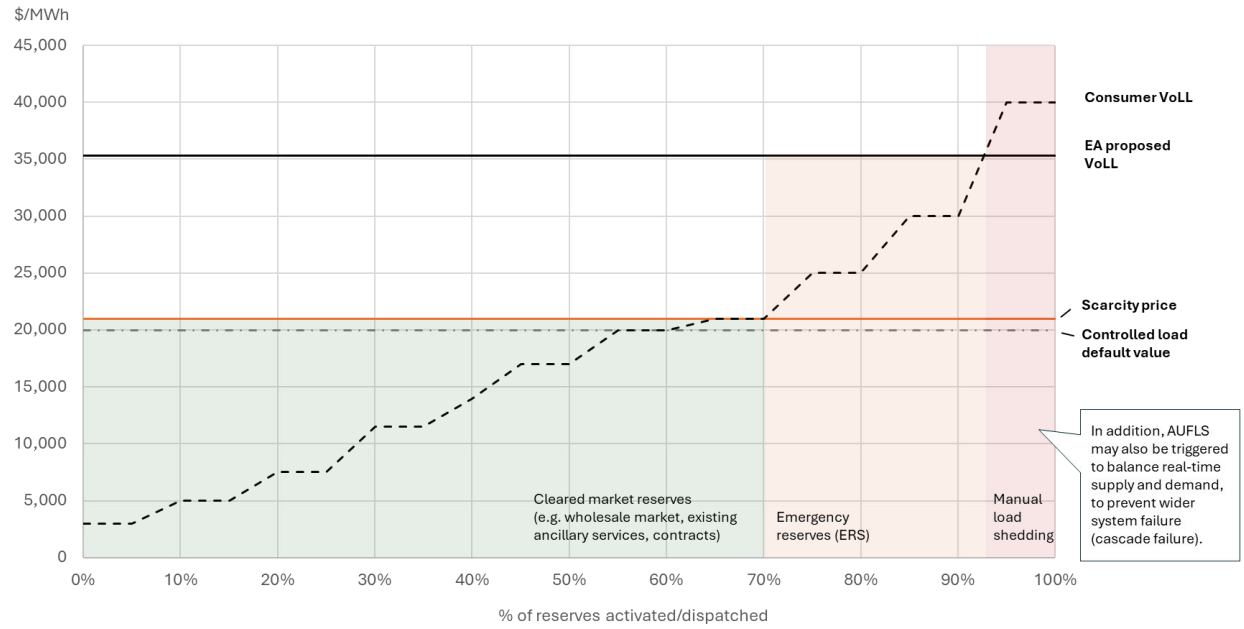
[3] EA, Establishing an Emergency Reserve Scheme – Consultation paper, 31 July 2025. para 4.15. p 19. https://www.ea.govt.nz/documents/7946/Consultation_Paper_Establishing_an_Emergency_Reserve_scheme_v2.pdf

Despite this, we consider there is merit in evaluating how our emergency management process works now to ensure we are better prepared for emergency events in coming years. Our submission therefore focuses on the practical aspects of the EA's proposed objectives and the design parameters of the ERS to give effect to this.

Additionality is key

CEL's understanding is that, during a forecast shortfall event, the EA's proposed ERS provides an interim measure to prioritise economic (voluntary) load shedding, before manual uneconomic (involuntary) load shedding is required. This allows a more dynamic approach to manage emergency events within the gate closure period (i.e. within 1 hour of real-time dispatch) when a Grid Emergency Notice (**GEN**) is issued.

The ERS therefore addresses the inefficiency in the current approach of using a single VoLL for all customers. This is because not all customer types have the same VoLL, as some customers may be willing and able to curtail load for a given price above scarcity price[4] and below average VoLL. This is illustrated graphically below which represents a reserve demand curve[5] based on consumer VoLL:[6]



[4] Scarcity price is signaled in forward market schedules up to one week ahead of real-time when the SO identifies insufficient forecast supply to meet forecast demand

[5] Hogan, W., Pope, S., PJM Reserve Markets: Operating Reserve Demand Curve Enhancements. 21 March 2019. https://whogan.scholars.harvard.edu/sites/g/files/omnuum4216/files/whogan/files/hogan_pope_pjm_report_032119.pdf

[6] This chart is illustrative only. Represents shortfall event after gate-closure (1 hour within real-time dispatch), with scarcity price of $21,000/MWh (Tranche 1, first 5% of demand).

Where currently, distributors are instructed by the SO to shed customer load if there are insufficient reserves after gate closure (red), if an ERS was implemented, this is deferred until after all ERS resources have been activated (orange). CEL considers the challenge will be ensuring 'additionality' so that a 'missing money' problem is not inadvertently created. The RBP paper proposes that, like with Grid Support Contracts, the SO can prove 'additionality' when procuring ERS resources by:[7]

- Verifying loads providing ERS DR are not part of any other contract or pricing incentive to which it responds to; and
- Analysing historical data to verify whether load has historically decreased consumption in response to price, irrespective of whether it is part of a load reduction program.

We agree in principle with this approach, noting it would imply:

- Resources that participate in market reserves (green) are not eligible to participate in the ERS (orange);
- ERS providers (orange) only includes resources that would have otherwise been included in involuntary load shedding (red); and
- ERS providers (orange) can participate in market reserves (green), and vice versa, but are not allowed to participate in both markets at the same time.

However, one aspect not discussed is whether DR providers can move freely between market reserves and the ERS, and at any time. This could create opportunities for gaming (e.g. when the ERS offers a higher return than reserve markets). While profits from the ERS will be limited by the proposed VoLL cap[8], we consider the way 'additionality' is enforced by the SO will require further consideration if the scheme is pursued.

The ERS should have a single objective to minimise uneconomic load shedding during emergency events

As noted above, and previously submitted[9], we agree the ERS should not be used to promote 'market reserves'[10] (e.g. pre-contracted demand flexibility) as this would risk distorting price

[7] Robinson Bowmaker Paul (RBP), Evaluation of Emergency Reserve Scheme Options – report prepared for the EA, 9 May 2025. p 26. https://www.ea.govt.nz/documents/7944/Appendix_A_-_RBP_Evaluation_of_Emergency_Reserve_Scheme_options.pdf

[8] Where the SO ensures the costs of the scheme is less than 'VoLL x estimated quantum of unserved load'

[9] Counties Energy, Rewarding industrial demand flexibility – Issues and options paper. 3 July 2025. https://www.ea.govt.nz/documents/7885/Counties_Energy_-_TF2D_submission.pdf

[10] The EA draws a distinction between 'market' and 'off-market' resources where 'emergency reserves' refers to 'off-market' resources that would not otherwise participate in DR markets outside of emergency events.

signals in existing markets.[11] Instead, we consider the ERS should only be used to address the inefficiencies in the current process for emergency events and 'emergency reserves'. These are circumstances where uneconomic load shedding is activated, even though there may be 'off-market' DR resources both willing and able to curtail load for a cost less than VoLL and above scarcity price.

With this, we consider the EA's secondary objective to build DR capability[12] should sit outside the ERS. This is to avoid confusing the roles of the ERS and reserve markets, and to preserve the allocative efficiency of market dynamics. This is because New Zealand's electricity market relies on sending the right price signals to incentivise participants to invest in, and dispatch, least cost supply-side resources. For example, if it is uneconomic for a consumer to invest and build DR capability now (without an ERS) to participate in the market, then it should arguably remain uneconomic with the ERS implemented. If not, this implies a 'missing money' problem with our current markets not signalling the right price signals to invest.

An ERS should not be the solution to fix this. Only when there are extreme long-tail events (e.g. 'perfect storm' events) should the ERS be relied on to curtail load through pre-contracted emergency reserves, before uneconomic load shedding occurs. Therefore, we consider the ERS should only have a single objective – to minimise the likelihood and extent of uneconomic load shedding during infrequent periods, when demand is high and insufficient supply is available from 'market' sources.

Forecast uncertainty also affects load which impacts ERS activation

As noted by the EA, pre-activation (1 to 36 hours ahead of real-time) and activation of the ERS should be triggered by forecast residuals in the SO's existing operational forecasts.[13] The ERS can then be used as a penultimate resort option by the SO, before uneconomic or involuntary load shedding is required. However, like with the SO's assessment[14], we consider forecast uncertainty extends beyond intermittent generation forecasts, but also includes uncertainty around demand or load at Grid Exit Points (**GXPs**). This is being affected by flexibility solutions, such as flexible

[11] EA, Establishing an Emergency Reserve Scheme – Consultation paper, 31 July 2025. para 5.7. p 24. https://www.ea.govt.nz/documents/7946/Consultation_Paper_Establishing_an_Emergency_Reserve_scheme_v2.pdf

[12] EA, Establishing an Emergency Reserve Scheme – Consultation paper, 31 July 2025. para 5.6. p 24. https://www.ea.govt.nz/documents/7946/Consultation_Paper_Establishing_an_Emergency_Reserve_scheme_v2.pdf

[13] EA, Establishing an Emergency Reserve Scheme – Consultation paper, 31 July 2025. para 5.67. p 34. https://www.ea.govt.nz/documents/7946/Consultation_Paper_Establishing_an_Emergency_Reserve_scheme_v2.pdf

[14] Transpower, Evolving market resource co-ordination in Aotearoa New Zealand – Final. July 2024. p 12. https://static.transpower.co.nz/public/bulk-upload/documents/Evolving_Market%20_Resource_Coordination_FINAL.pdf?VersionId=bjUQNMeu7aAfBHxcF6_16KiRYo0q2KIw

connections and passive or implicit demand flexibility (e.g. time-of-use pricing) becoming more prevalent in the system, which can create non-conforming load at conforming GXPs.[15]

In aggregate, this can have a significant effect on demand forecasting. This is due to 'off-market' resources where the SO has limited visibility of the resources affecting forward market schedules. This is also a key finding in the recent National Electricity Market (**NEM**) review,[16] where it highlighted that over-forecasts of demand relative to supply due to 'hidden participants' is resulting in an over-dispatch of generation supply, necessitating greater reserves (e.g. frequency control ancillary services) to be dispatched to help maintain the system supply/demand balance**.**

This could increase the likelihood of the ERS being activated due to the 'false positives' they create. Although, work is underway to achieve better coordination and visibility of Distributed Energy Resources (**DERs**) in the system, including high-level options for a Distribution System Operator (**DSO**)/Transmission System Operator (**TSO**) framework[17], and CEL's Memorandum of Understanding with Transpower to share visibility DERs on its network at a GXP level (and extending this for historical and forecasted flexibility use)[18], we consider that in the near-term this may skew the ERS towards more frequent activation than would otherwise be the case.

Further work needed to coordinate restoration of load

In addition to the above, as noted by the EA[19] and other submitters[20], the proposed ERS design requires further work to determine how best to coordinate between the SO and distributors on the restoration of any ERS load activated by the SO. This requires distributors to have visibility of ERS providers, and the quantum of DR load connected to their networks, to enable distributors to manage restoration of load after an ERS activation and any localised impacts it may have. If pursued, CEL agrees that this issue is best addressed outside of its initial design, for example, through a specific clause in the ERS service provider contracts that sets clear expectations of responsibilities between parties.

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[15] This is not an issue at non-conforming GXPs where, due to unpredictability of load, purchasers at that GXP are required to submit load bids to the SO.

[16] Nelson, T., et al. National Electricity Market wholesale market settings review – Draft report. August 2025. p 80. https://consult.dcceew.gov.au/nem-review-draft-report-consultation

[17] https://www.ea.govt.nz/projects/all/future-security-and-resilience/consultation/future-operation-of-new-zealands-power-system/

[18] https://countiesenergy.co.nz/media-centre/counties-energy-and-transpower-collaborate-on-tso-dso-pilot-project/

[19] EA, Establishing an Emergency Reserve Scheme – Consultation paper, 31 July 2025. para 5.76. p 35. https://www.ea.govt.nz/documents/7946/Consultation_Paper_Establishing_an_Emergency_Reserve_scheme_v2.pdf

[20] Vector, Feedback on roadmap for industrial demand flexibility. 27 June 2025. p 11. https://www.ea.govt.nz/documents/7901/Vector_-_TF2D_submission.pdf

We understand that introducing an ERS that doesn't distort current markets is not an easy task but appreciate the EA's efforts in progressing this work now, particularly when New Zealand's security of supply is increasingly precarious. We look forward to engaging with the EA as it develops the scheme further. CEL would be happy to discuss any aspect of this submission further.

Yours sincerely

Marcus Sin

Senior Regulatory Manager

Annex – Response to questions

Questions	CEL comments
The case for an emergency reserve scheme in New Zealand	
1. Do you agree with our rationale for establishing an ERS? Why/why not?	CEL considers that, if the ERS is established for the purposes of 'economic' load shedding, then there is merit in developing and designing such an administrative scheme for the New Zealand electricity system. This is because there is currently no mechanism to protect against the uneconomic load shedding of customers during emergency events after all market resources have been exhausted. We consider there may be consumers capable of shedding load at a lower cost than VoLL that may help support the system during grid emergencies to help minimise involuntary load shedding.
2. Are there other factors or risks you consider relevant to our decision to implement an ERS?	CEL agrees in principle with the proposed ERS design factors but note that 'additionality' may be challenging to implement. However, we acknowledge there is already an existing framework for this through Grid Support Contracts.
Proposed emergency reserve scheme design	
3. Do you agree with our proposal that only demand-side flexibility, including by industrials and aggregations of smaller consumers, should be eligible to provide ERS?	CEL agrees in principle that the ERS should only include off-market resources to ensure 'additionality' and acknowledge the EA's reasoning for excluding battery storage and off-market generation (e.g. diesel gensets). We also note that under the Code, the SO have powers to enable generators to update their offers within the gate closure period, which ensures all available supply is being provided into the market during emergency events.
4. Are you aware of any off-market generation or batteries that may not be activated in an emergency if they are not included in an ERS?	No CEL comment.

Please provide details of the type and scale of these resources.	
5. Do you agree with our proposed design elements for procurement of ERS by the System Operator, including the procurement process, timing and trigger?	Yes – CEL agrees in principle with implementing the scheme like with other ancillary services procured by the SO (e.g. black start). We agree the SO is best placed to manage and operate the ERS, to ensure there is clear visibility of the type and capacity of emergency reserves available in the system. CEL agrees a competitive approach for procurement is most appropriate to ensure that (generally) least cost 'off market' DR is prioritised, which is consistent with the ERS's primary objective.
6. Do you consider that procurement up to 4 weeks in advance of an identified need, coupled with a pre-approved panel of providers, will be effective and provide adequate time for potential providers and the System Operator?	CEL agrees in principle with procuring within four-weeks of an identified shortfall event and agrees in principle with having a panel of pre-qualified providers.
7. Do you agree with our proposed pre-activation and activation processes for use of the ERS?	CEL agrees in principle with triggering ERS activation after gate closure in the spot market for the relevant time-period. We consider that this would ensure all market resources that are able to participate and contribute have been dispatched, and ahead of any ERS resources being used.
8. Do you agree that the System Operator should be required to update relevant planning processes to take account of forecast uncertainty? If so, how do you consider this should be done?	CEL agrees in principle that the SO should be required to update relevant planning processes to consider forecast uncertainty (i.e. discrepancies in the forecasts of wind). However, we consider forecast uncertainty also affects demand or GXP load which is likely to be more prevalent as flexible solutions with DERs continues to emerge. While

	New Zealand is a different system to Australia[21], a similar point was raised in the recent NEM review, indicating that smaller decentralised resources are distorting SO forecasts, which raises reserve costs to balance over/under-forecasting demand and dispatching more/less supply than is necessary.[22]
9. Do you agree with our proposed compensation and price settings for the ERS, including proposed measures to ensure overall unit costs do not exceed VoLL?	CEL agrees in principle with the EA's proposed compensation for ERS providers to include both availability costs, and activation costs. We also agree in principle that it would not be practical for the SO to procure compliant providers to be strictly less than VoLL given the flexibility in contracting arrangements with potential ERS providers. For this reason, we agree a 'reasonable endeavours' requirement on the SO to manage ERS costs below 'VoLL x unserved load' is an appropriate alternative.
10. Do you consider that the System Operator should also be required to ensure overall costs during an ERS activation are less than VoLL? If so, how do you consider this could be practically achieved in the available time?	See comment above. CEL considers that requiring the SO to ensure overall costs during an ERS activation is less than VoLL is not practical. Instead, an ex-post assessment of procurement costs against VoLL combined with regulatory (periodic) monitoring could suffice to ensure ERS costs generally remains within efficient levels.
11. Do you agree with our proposal to 'add back' activated ERS into nodal load schedules to maintain scarcity pricing?	CEL agrees in principle with the EA's proposal to 'add back' the nodal load schedules from any ERS activation. This ensures spot prices continue to be set at levels undistorted by ERS activation.
12. Do you agree with our proposed settings for cost allocation and settlement of ERS costs? Do you consider an alternative cost	CEL agrees that ERS costs should be allocated to all load customers (i.e. retailers/traders, purchasers), like with ancillary services. This is because load customers are effectively the beneficiaries of the

[21] In Australia, peak demand is driven by high temperatures (increasing electricity demand from air-conditioning use). However, forecast uncertainty is similarly caused by unpredictable weather conditions on solar (e.g. cloud cover), wind (e.g. discrepancies to wind speed). and temperature-related impacts on thermal (e.g. forced outages due to overheating).

[22] Nelson, T. et al. National Electricity Market wholesale market settings review – Draft report. August 2025. p 80. https://consult.dcceew.gov.au/nem-review-draft-report-consultation#consultation-documents

recovery approach would be preferable and if so, why?	ERS by way of continuity of supply. If allocated to generators, this will ultimately flow through to consumers through higher spot prices or wholesale costs. CEL agrees in principle with the proposed allocation method for pre-event and event costs, which includes allocating pre-event costs based on share of monthly metered consumption in relevant months, and allocating event costs based on metered consumption during activation events. CEL also agrees in principle with the proposed process for settlement – that it should leverage existing Clearing Manager (**CM**) and SO processes currently used for settlement and clearing. We consider this would be a cost-efficient way to implement the scheme. For aggregators who participate in the ERS, we agree that an interim solution could be to provide aggregated metered data to the SO. However, we note that there would need to be a way to validate this data against the metered consumption data that is submitted by participants.
13. Do you agree with our proposed settings to manage non-performance by ERS providers?	No CEL comment.
14. Do you agree with our proposed information and publication settings to enable the effective operation and monitoring of the ERS? Is there additional information you consider should be made available to potential providers, the Authority, other industry participants or the public?	No CEL comment.

15. Are there are other scheme design elements that the Authority should consider?	No CEL comment.
Preliminary evaluation against guiding principles	
16. Do you agree with our high-level evaluation of the proposed ERS against our guiding principles?	CEL agrees with the EA's high-level evaluation against its guiding principles. However, CEL notes that the ERS's objective should be to minimise uneconomic load shedding, not unlock demand flexibility for wider use, as implied by the EA's proposed secondary objective.
17. Is there any additional information the Authority should consider in evaluating a proposed ERS design?	No CEL comment.
Implementation and related issues	
18. Do you think there are any elements of the proposed scheme which require more time for implementation and should be delayed beyond Winter 2026? If so, please identify the relevant elements and indicate when you consider they could be implemented.	No CEL comment.
19. Do you agree with the Authority's proposal to set VoLL at $35,305/MWh for the purposes of the ERS, and proposal to review VoLL and security standards more broadly?	CEL agrees in principle with a review of the current VoLL and security standards more broadly. We consider that current settings are outdated and needs to be revised to reflect New Zealand's current operating environment, including peak demand growth, forecast build of variable/intermittent generation resources, and declining thermal availability.
20. Are you likely to be interested in participating in an ERS, such as	No CEL comment.

the scheme outlined in this paper?	
21. Are there any other implementation considerations or related issues the Authority should consider in relation to an ERS?	No CEL comment.
22. Are there other matters that the Authority should consider in relation to an ERS?	No CEL comment.