28 August 2025

The Electricity Authority
Wellington

taskforce@ea.govt.nz

Re: Establishing an Emergency Response Scheme (ERS) – consultation paper 31 July 2025

Thank you for the opportunity to submit on this paper. This submission should be considered in the context of wider discussions between NZ Steel and Authority staff on the subject of demand response, and our submission on the Rewarding industrial demand flexibility paper[1].

Key points:

- NZ Steel as a large industrial site does have potential to participate in demand flexibility, but there are regulatory, operational, and economic constraints.
- Existing market settings and mechanisms have proved inadequate to prevent periods of system stress, hence a proposed ERS outside the current market-based mechanisms.
- The expected infrequency of events and uncertain nature of the ERS limits payment to providers and therefore the likely level of participation.
- We consider **the proposed ETS has focused unduly on market efficiency and lost sight of likely effectiveness in having load of significance participate.**
- It is important the Authority is clear as to the key load outcome the System Operator should expect following an ERS dispatch instruction. Large complex industrial sites will likely require one-on-one consideration.
- If the proposal is to be effective in securing industrial load participation of scale, the blanket exclusion of existing market and regulatory mechanisms from ERS participation, in particular AUFLS, needs to be re-thought.

Commentary:

The Rewarding industrial Demand flexibility paper[2] identified load of significance industrials can potentially bring to managing system peaks and during periods of short-duration stress. An ERS being one mechanism.

The NZ Steel site at Glenbrook is the 2nd largest in New Zealand in electrical terms. As has been indicated previously, there are electrical loads that can be flexed for short periods of time. However, there are several regulatory, technical, operational, and economic factors

[1] NZ_Steel_-_TF2D_submission.pdf
[2] Rewarding industrial demand flexibility

that go into any decision to offer load for demand flex. The rewarding flexibility paper recognised these[3] .

We agree with the intent captured in the ERS paper to provide an additional mechanism in periods of system stress[4] . The paper notes the changing nature of the electricity system and increasing intermittency of generation. What we disagree with is the claim "Existing market mechanisms provide sufficient price signals for investment in, and operation of, the electricity system to manage peak capacity risk and balance the system under normal conditions"[5]. The new "normal" has existed, and the "system" has been transitioning to more intermittency, for some years now. The fact these conversations are even necessary is a reflection that the market mechanisms have not provided what is required. We note the peak situation has been exacerbated by watering-down[6], and in particular the removal of a peak demand signal[7].

MDAG recommended an ERS may be necessary[8]. We commend the Authority for proposing such a mechanism, but the fact it is now over 18 months since that report was finalised and we continue to experience 'near-misses' and that a "penultimate resort"[9] mechanism is deemed necessary, must be a point for inward reflection by the Authority.

The ERS paper identifies all the valid reasons such a mechanism is still required. The key reason for the ERS is basically to keep the lights on for consumers[10]. In developing the proposed mechanisms to achieve this, thinking within the paper has strayed from what is actually required for it to be feasible for industrial load to participate. Undue emphasis has been placed on current market incentives (which as identified above have failed to deliver market alternatives to an ERS). The very limited (if any) participation in the Dispatchable Demand regime is an example of design theory just not having practical application for industrial consumers[11].

The key objective needs to be to ensure that load that can be economically turned-down or turned-off, is not on the system at a time of system stress. The ERS is the last-resort to avoid "uneconomic load Shedding"[12]. Under system stress the physics are more important than the market economics. Involuntary loss of supply – whether controlled (eg instructed

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[3] Paras 4.19 to 4.23

[4] Page 2, "An ERS could provide an additional tool for the System Operator to use in periods of acute system stress. It would promote power system reliability and security by helping to manage critical supply shortfalls and could avoid consumers' power being disconnected during emergency events. 1 It is not intended to be a solution to address long-duration events causing system stress, such as dry years"

[5] ibid

[6] Rewarding Industrial Demand Flexibility, para 2.10,

[7] RCPD – Regional Coincident Peak Demand.

[8] Price discovery in a renewables-based electricity system: Final Recommendations PAPER 2023, Recommendation 30.

[9] ERS paper, paper 4.13.

[10] ERS paper, para 3.1 "An ERS is intended to help maintain power system security and reliability during rare periods when supply shortfalls arise, to minimise the risk or extent of uneconomic load shedding".

[11] ERS paper, para 2.14 and Rewarding Industrial Demand Flexibility, para 2.12 & 4.5

[12] ERS paper, para 3.1.

load shedding) or an under-frequency trip will have a high cost – financial and perhaps social (on a cold winter night or morning).

An ERS needs to stand independent of wholesale price and regulatory requirements. The rewarding flexibility paper stated "The work under this initiative explores potential ways for industrials to be adequately rewarded for helping balance the electricity system during peak periods, ie, providing intraday flexibility, particularly during times of higher demand and tight supply such as in winter."[13]

The proposed ERS goes to great lengths to ensure all existing market mechanism have been 'exhausted' before the ERS incentives are applied. We can understand the purpose: to not distort the market, avoid double payments, payment not to use, etc. However, in so doing we suggest this **will make a large part of potential flex-load unavailable or unwilling to participate, making the ERS ineffective.**

We make the following observations:

a. A high wholesale market price will not necessarily result in load reduction.[14]
b. Wholesale prices signals are muted by hedging and may make demand response irrelevant[15] (except for arbitrage opportunities)
c. Since the industry reforms in the mid–late 1990's there has been a muting of demand response mechanism such as ripple control[16]
d. Transmission Pricing Methodology (TPM) no longer has a peak demand component and has resulted in increased peak system load[17]
e. Interruptible Load (IL) made available to the reserves market has been excluded from the proposed ERS. It is unclear if this is just a trading period by trading period requirement. It is unlikely IL will be withdrawn over an extended period for the uncertainty of an ERS payment.
f. Automatic Under Frequency Load Shedding (AUFLS) is now a requirement placed on Transpower direct connect customers. The requirement that the 32% of pre-event load must be maintained in an approved AUFLS scheme and cannot be counted for an ERS, effectively removes significant demand-flex potential. The arguments on this subject go much deeper and involve IL and cogeneration. We reference the 2021 NZ Steel and MEUG submissions on AUFLS[18]
g. IL and AUFLS are mechanisms to prevent system failure. They click-in after all voluntary and involuntary mechanisms have failed to reach a supply/load balance. Industrial load not being on the system before those under-frequency trigger points are reached should be a key objective of the ERS.

[13] Rewarding Industrial Demand Flexibility, page 2.
[14] Rewarding Industrial Demand Flexibility, para 5.7. Also Sense Partners report page 4.
[15] Rewarding Industrial Demand Flexibility, para 4.6, MDAG final recommendations report, page 116/7.
[16] Rewarding Industrial Demand Flexibility, para 2.10
[17] Refer NZ Steel submission on Transmission pricing methodology amendments: a level playing field for emerging technologies.
[18] BlueScope Steel Letter and MEUG-Extended-reserve-submission.pdf

h. **The Authority needs to rethink the objective relating to load. We suggest the focus on fixed MW of load that can be reduced when dispatched, compromises what can be achieved by ensuring significant blocks of load are not on the system when an ERS event activation is required.**

We quote from our submission to the rewarding demand flex paper that "a standardised approach may not be sensible when it comes to large industrials. Rather, the better approach is perhaps to design demand response packages for interested parties on a case by case basis. The tailored package can suit the given industrial's load requirements and also be designed to suit the demand response requirements of the Grid. NZ Steel believes this tailored case by case approach would be the most efficient pathway to achieving a timely outcome"[19].

Further comments are included in the attached submission Q&A paper.

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[19] NZ_Steel_-_TF2D_submission.pdf

Appendix C Format for submissions

Establishing an Emergency Response Scheme

Submitter	New Zealand Steel

Questions	Comments
Q1. Do you agree with our rationale for establishing an ERS? Why/why not?	Yes. Market stress situations do arise which existing market mechanisms are not able to accommodate. A properly functioning mechanism to compliment these existing mechanisms will assist in reducing risk of involuntary and uneconomic loss of load.
Q2. Are there other factors or risks you consider relevant to our decision to implement an ERS?	Before progressing to the next stage of ERS design, it is important to re-look at likely effectiveness relative to the Sense Partners projections in the Rewarding Industrial Demand Flexibility paper.
Q3. 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?	The bigger question, is will the proposed ERS mechanism achieve the volume of participation that is sought?
Q4. 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? Please provide details of the type and scale of these resources.	Yes. Small-scale emergency/contingency diesel generation will likely not start without an assured incentive/income. Real-time-prices are often unpredictable and fleeting. For NZ Steel 5-6 MW can be provided from this source, but this brings its own costs and risk to operations.
Q5. Do you agree with our proposed design elements for procurement of ERS by the System Operator, including the procurement process, timing and trigger?	No. To even engage in the proposed ERS will bring a resource requirement that likely limits the pool of participants to load aggregates and consumers with dedicated energy management resources. The requirements to participate may take technology investment, and will take on-going attention to policy,

	regulations, procedures, operational protocols, and financial assessment. Financial recompense will only result if: • A site is operationally able to offer load, AND • The loads meet the pre-qualification requirements, AND • A tender is called, AND • The tender is accepted, AND • the event eventuates (there may be a payment at this stage), AND • the load is dispatched, AND • load is reduced (Then a further payment may be received, perhaps once or twice a year). The key question for a potential participant, "is it worth it?" when there are direct and indirect costs in reducing load, and other more certain opportunities for the business to pursue. There are elements of the above that are necessary, however, the overall as proposed is too restrictive and more likely will serve as detractors from those potentially interested in being involved. NZ Steel's suggestion remains a case by case approach with users to establish a suitable match that might be worth pursuing.
Q6. 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?	It should be sufficient for those who may decide to participate, but within the context of our comments to Q5.
Q7. Do you agree with our proposed pre-activation and activation processes for use of ERS?	The bigger question is as per our response to Q5, who will actually be participating?
Q8. Do you agree that the System Operator should be required to update relevant	No comment.

	planning processes to take account of forecast uncertainty? If so, how do you consider this should be done?	
Q9.	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?	While these settings may pass the system economics test, we doubt they will be fit for purpose in a practical or financial sense for a number of potential industrial consumer participants.
Q10.	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?	No. The key objective of an ERS is to "...minimise the risk and extent of uneconomic load shedding" (para 3.1). That means keeping the lights on. Given the expected infrequency, and risk such events pose, the SO has a more important role in real-time than assessing economic impact.
Q11.	Do you agree with our proposal to 'add back' activated ERS into nodal load schedules to maintain scarcity pricing?	Yes, if this is practical.
Q12.	Do you agree with our proposed settings for cost allocation and settlement of ERS costs? Do you consider an alternative cost recovery approach would be preferable and if so why?	What is outlined seems sensible and equitable.
Q13.	Do you agree with our proposed settings to manage non-performance by ERS providers?	This question needs to be considered relative to our earlier point about a practical outcome. A 'no penalty' regime does not seem appropriate when a participant has been paid to be on standby to deliver an agreed volume of MW load reduction.

	However, we suggest such a narrowly defined requirement will significantly limit the amount of load able to participate.
Q14. 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?	Clarity is required as to what participants will actually be committing to do when they submit to a tender? Is it fixed MW or fixed price for what MW they do dispatch? This is an important distinction. (refer para 5.53) Clarify where PROP fits into the hierarchy of response shown in figure 1 (page 19). In this regard it will be useful to show the automated responses in the diagram ie under-frequency shedding (IL and AUFLS).
Q15. Are there other scheme design elements that the Authority should consider?	
Q16. Do you agree with our high-level evaluation of the proposed ERS against our guiding principles?	The proposed ERS has gone to some length to ensure "Efficient incentives are available to all providers of flexibility services" and "Providers have effective incentives to be available..." (underlining added). What we consider is missing are EFFECTIVE incentives to participate.
Q17. Is there any additional information the Authority should consider in evaluating a proposed ERS design?	Will this actually attract a worthwhile amount of load to particate? (refer earlier comment on the Dispatchable Demand product.)
Q18. Do you think there are any elements of the proposed scheme design 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.	We have already indicated our view that this proposal as written is likely to have limited application potential for industrial consumers. As submitted previously, we suggest conversations with potential participants before proceeding, potentially with bespoke offerings if suitable.
Q19. Do you agree with the Authority's proposal to set	No comment at this stage

VoLL at $35,305 per MWh for the purposes of the ERS, and proposal to review VoLL and security standards more broadly?	
Q20. Are you likely to be interested in participating in an ERS, such as the scheme outlined in this paper?	NZ Steel has previously indicated ability and willingness to flex load (recognising there are direct and indirect costs of doing so). However, the scheme as outlined to our understanding, effectively curtails the opportunity. We suggest one to one engagement with larger industrials to seek suitable opportunities to participate.
Q21. Are there any other implementation considerations or related issues the Authority should consider in relation to an ERS?	The proposed ETS is based around fixed MW being offered and possibly dispatched- off in an ERS event. These loads are after discounting all load related to market mechanisms (eg IL) or regulatory requirements (eg AUFLS). The thrust of our submission is this seriously diminished much (most?) of the load that could participate in the ETS. As an alternative we suggest focus for the "penultimate resort", ie the ERS be switched to ensuring certain industrial loads are "off" before "last resort" (page 19) involuntary load shedding is required.
Q22. Are there other matters that the Authority should consider in relation to an ERS?	We suggest a review of the restrictions around AUFLS load. The key objective for industrial AUFLS is that load should not be on the system during such an under-frequency event. When and what initiates that load not being 'on', is not important. AUFLS is outside existing market mechanisms.