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Energy Competition Task Force
Electricity Authority

Submitted via email: taskforce@ea.govt.nz

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Dear Task Force team

RE: Establishing an Emergency Reserve Scheme

Thank you for the opportunity to provide feedback to the Energy Authority (Authority) on the *Establishing an Emergency Reserve Scheme – consultation paper*.

Enel X works with commercial and industrial energy users to develop demand-side flexibility and offer it into wholesale capacity, energy and ancillary services markets worldwide, as well as to network businesses. Enel X has been offering customer load into the Instantaneous Reserve (IR) market in New Zealand since 2009. Enel X also work with commercial and industrial energy users to aggregate responses for out-of-market emergency support mechanisms such as the Reliability and Emergency Reserve Trader (RERT) mechanism in the Australian National Electricity Market (NEM).

Enel X is deeply committed to promoting a vibrant market for demand response (DR) and have invested considerable resources in building a portfolio of capabilities to support reliability and security in energy markets globally.

Emergency Reserve Scheme

Enel X endorses the Authority's proposal to implement an Emergency Reserve Scheme (ERS) to protect New Zealanders from uneconomic load shedding during periods of peak electricity demand. Supply adequacy risks from low residual generation events triggered by deteriorating reliability of aging generation fossil fuelled generation is not a risk unique to New Zealand. Comparable markets such as the Australian NEM have robust out of market mechanisms (e.g. RERT) that provide market/power system operators tools to improve resiliency when faced with unexpected threats to power system reliability. The transition to a lower reliance on fossil fuelled generation and expansion of storage technologies can be accelerated without significant risks of involuntary load shedding with an ERS in place.

Enel X agree ERS should be a last resort mechanism, to be used infrequently. Many features of NEM RERT mechanism may be adopted for the ERS including focus on 'out-of-market' resources and technology agnostic procurement.

Behind-the-meter standby generation and battery Uninterruptible Power Supplies (UPS)

Enel X are uncertain on the Authority's approach to utilising behind-the-meter standby generation or battery UPS resources to offset site loads in the proposed ERS. Enel X suggest that these resources providing a net load reduction are unlikely to be market exposed or otherwise contracted to provide grid-services.

In other jurisdictions we have co-ordinated significant aggregations of these types of resources (for example data centre backup generation) to support similar emergency reserve schemes. In markets such as the NEM, these resources would be eligible for RERT provided they are not spot market exposed, contracted to provide other services, and are shown not to be spot price responsive. Enel X welcome the Authority's further consideration of these resources.

We estimate that approximately 50MW of standby generation that provide a 'net load reduction' could be activated in ERS but otherwise would not respond without an economic incentive to do so.

Instantaneous Reserves

The opportunity for flexible demand participating in the New Zealand market has largely been limited to participation in the Instantaneous Reserves (IR) mechanism. It is plausible that loads currently participating in IR may be better utilised in emergency situations to provide an ERS response. Enel X recommend the Authority consider the projected supply/demand balance in the IR mechanism and if costs to end-users could be minimised in an emergency event if IR resources 'bid out' of IR to provide a guaranteed load reduction under ERS to avoid load involuntary load shedding. There seems to be little value in withholding excess frequency interruptible load from responding to ERS and activating other more expensive flexible demand.

Maintaining price signals in energy and ancillary services markets during an ERS activation is important to ensure Interruptible Load respond economically. That is, if in scarcity conditions both energy and IR prices are high then Intermittent Load will be incentivised to provide frequency responsive reserve unless the IR market is over-supplied.

'Out-of-market' timeframe

In the Australian NEM, flexible resources that have participated in the wholesale market need to be 'out-of-market' for 12-months before participating in RERT. Enel X recommend the Authority consider an 'out-of-market' period threshold for ERS qualifying resources to ensure previously market responsive but not currently utilised resources are not stranded outside of ERS.

Demand Response program success factors

Enel X would like to share with the Authority our 'lived experience' of key success factors for expanding flexible demand participation in demand-side response programmes. Figure 1. Demand response programme success factors shown below is based on our experience providing demand response services in markets globally.

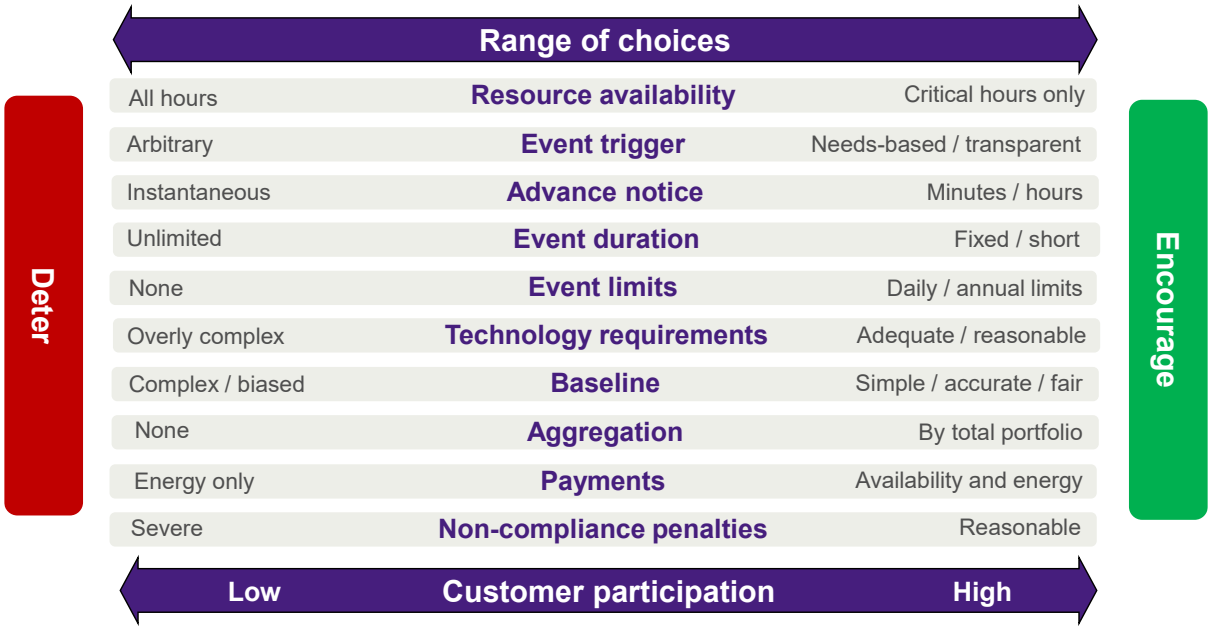

Figure 1. Demand response programme success factors

Verification at a portfolio level

Aggregators are best able to deliver a dependable and specific MW (or MWh) response if response to an ERS event if the verification process is based on an aggregate portfolio basis. Enel X has a robust operational framework, end-user commercial offering, and technology stack to deliver market services utilizing a portfolio of resources. A portfolio verification approach best leverages this capability to provide dependable services at least cost.

Proportionate non-compliance penalties

Enel X accept that underperformance penalties are important to maintain service quality and minimise costs for end users. Enel X expect any forfeit of activation and availability payments due to failure to satisfy performance requirements without bone fide reasons to be proportionate to the underperformance. This could by calculated on an actual energy reduction vs expected energy reduction (MWh) ratio during an activation event considering headroom for 'resource fatigue' during longer events. A risk of the forfeit of all activation and availability payments would have a chilling effect on participation.

Further consultation responses

Enel X have attached the Authority's proforma submissions questionnaire with additional responses to this letter.

We would be happy to discuss any of our responses further with the Authority. If you have any questions or would like to discuss this submission further, please do not hesitate to contact me.

Kind Regards,

Alister Alford
Senior Manager, Market Development and Regulatory Affairs, Australia & New Zealand
[redacted]

Appendix C Format for submissions

Establishing an Emergency Response Scheme

Submitter	Enel X New Zealand Limited

Questions	Comments
Q1. Do you agree with our rationale for establishing an ERS? Why/why not?	Enel X support emergency reserves as part of the hierarchy of mechanisms to balance supply and demand. Emergency reserves programmes provide clarity and certainty of response during low frequency but high impact events. The Australian National Electricity Market (NEM) Reliability & Emergency Reserve Trader (RERT) and the Western Australian Wholesale Energy Market (WEM) Supplementary Capacity mechanisms are good examples of programmes that can avoid unnecessary load shedding by activating pre-qualified emergency reserves. Enel X share the Authorities view that there is minimal 'moral hazard' risk that market participants make sub-optimal investment or operational decisions provided market participants remain exposed to high pricing (i.e. 'what-if' or counterfactual ex-post adjustment) while an emergency reserve scheme is activated.
Q2. Are there other factors or risks you consider relevant to our decision to implement an ERS?	In the Australian NEM, flexible resources that have participated in the wholesale market need to be 'out-of-market' for 12-months before participating in RERT. Enel X recommend the Authority consider an 'out-of-market' period threshold for ERS qualifying resources to ensure previously market responsive but not currently utilised resources are not stranded outside of ERS.
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?	Enel X agree that ERS should not displace the operation of other market or contractual mechanisms designed to help balance supply and demand Transferring load to behind-the-meter back up generation/BESS UPS is an important resource in emergency reserve schemes in the Australian NEM RERT and WEM NCESS/SC programmes. These generators are typically not exposed to the market and may lack the capability to synchronise with the grid. Outside of emergency demand response programmes these resources typically only activate on a loss of supply. Mirroring these Australian examples, Enel X encourage the Authority to accommodate within ERS standby generation that can be demonstrated to be out-of-market, offsets load that would otherwise be drawn from the grid, is not contracted to provide

	support to a retailer or network, can demonstrate it's not price responsive, and commits to only providing ERS or loss of supply services during the contracted term. For additional context, in the NEM RERT any generation resources must not have been 'in-market' in the prior 12-month period.
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.	Based on Enel X's engagement with the Commercial and Industrial sector loads we estimate that approximately 50MW of behind-the-meter standby generation providing a 'net load reduction' could be activated in ERS but otherwise would not respond without an economic incentive to do so.
Q5. Do you agree with our proposed design elements for procurement of ERS by the System Operator, including the procurement process, timing and trigger?	Enel X have extensive experience coordinating emergency reserves in other jurisdiction built on similar process flows to the ERS proposal. The planning, pre-qualification, procurement, deployment and verification/settlement elements proposed are consistent with models that are effective in other jurisdictions such as the NEM. The opportunity for flexible demand participating in the New Zealand market has largely been limited to participation in the Instantaneous Reserves (IR) mechanism. It is plausible that loads currently participating in IR may be better utilised in emergency situations to provide an ERS response. Enel X recommend the Authority consider the projected supply/demand balance in the IR mechanism and if costs to end-users could be minimised in an emergency event if IR resources 'bid out' of IR to provide a guaranteed load reduction under ERS to avoid load involuntary load shedding. There seems to be little value in withholding excess frequency interruptible load from responding to ERS and activating other more expensive flexible demand.
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?	Enel X support establishing a pre-qualified panel of providers to facilitate procurement up to 4 weeks in advance. More advanced procurement can unlock resources that otherwise would not be available for a shorter notice programme. In our experience from mechanisms such as the NEM Interim Reliability Reserves (IRR) programme which is built on much the same fundamentals as short notice RERT but with a longer procurement period, we have been successful in securing additional resources for emergency reserve. The success of IRR can be attributed to the ability to tender

	including an availability component, and additional notice to install metering, control systems etc.
Q7. Do you agree with our proposed pre-activation and activation processes for use of ERS?	Activation of ERS on the basis that all other market and contractual mechanisms has been exhausted and a forecast supply-demand imbalance remains is consistent with the practice in other jurisdictions that Enel X operate. This approach is also likely to minimise operational complexity. In our experience as an aggregator, pre-activation maximises the available flexible demand resource and reduces the time for demand-side resources to respond. While the proposed up to one hour's activation notice is workable, our experience suggests that up to two hours activation notice delivers better responses.
Q8. 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?	No further comments at this time.
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?	Enel X support the ability for providers to be able to structure offers to reflect their individual costs. The inclusion of preparation costs, availability costs, pre-activation costs and activation costs combined with constraints such as min/max activation durations, ramp rates, aggregate annual usage and maximum number of activations would be adequate to support inclusion of a broad range of resources. It's important to respect consumer Value of Lost Load (VoLL) to ensure the ERS meets consumer expectations, therefore the price settings for ERS should endeavour to keep the overall unit costs below VoLL.
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	In Enel X's experience, providing system operators with some flexibility to adapt the available resources to the circumstances of an event is a pragmatic response to lessen conflicting needs during an emergency condition. As such, a 'reasonable endeavours' requirement for the System Operator to 'expect' unit costs to be less than VoLL provides a prudent degree of flexibility in ERS deployment.

practically achieved in the available time?	Enel X believe the System Operator should be able to build an 'expectation' of unit costs during the activation phase based on the forecast duration and depth of shortfall, and the agreed costs for the available ERS resources that would be activated.
Q11. Do you agree with our proposal to 'add back' activated ERS into nodal load schedules to maintain scarcity pricing?	'What if' or counterfactual pricing to ensure that emergency reserves don't distort price signals is present in other markets with emergency reserve mechanisms. It seems reasonable to apply this approach in New Zealand. In principle, 'adding back' the activated ERS into load schedules is a reasonable proxy for maintaining scarcity pricing.
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?	Allocation of event costs based on metered consumption during events can create supporting 'indirect' demand-side responses. Where ERS event costs are allocated to loads based on their metered consumption during activation events a 'scarcity price signal' via ERS costs may encourage additional demand reductions if a large user is exposed to market charges pass through.
Q13. Do you agree with our proposed settings to manage non-performance by ERS providers?	Enel X support the proposed technical/commercial pre-qualification due diligence, testing to confirm performance of the service, and pre-activation measures as prudent steps to provide confidence in ERS delivery. Enel X expect the forfeited amount of activation and availability payments due to failure to satisfy performance requirements without bone fide reasons to be proportionate to the level of underperformance. This could by calculated on an actual energy reduction vs expected energy reduction (MWh) ratio during an activation event considering headroom for 'resource fatigue' during longer events. The risk of the forfeit of all activation and availability payments would have a chilling effect on participation.
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	Enel X recommend the System Operator publish a public preliminary ERS activation estimates report within a week of an activation event detailing total estimated volume and payments. This information would inform large end-users/retailers on the potential costs they may have been exposed to from ERS charges pass-thru. This reporting element was added to the Australia NEM RERT mechanism after large-end users on 'AEMO market charges pass thru' contracts

industry participants or the public?	complained of a lack of visibility to inform business cash flow management.
Q15. Are there other scheme design elements that the Authority should consider?	No further comments at this time.
Q16. Do you agree with our high-level evaluation of the proposed ERS against our guiding principles?	Enel X believe a distinction should be made between generation and batteries that may reasonably be exposed to the market versus behind-the-meter backup generation/UPS batteries that would not be used in market-facing or contracted grid support roles, but during an ERS event could support site loads providing a net load reduction.
Q17. Is there any additional information the Authority should consider in evaluating a proposed ERS design?	No further comments at this time.
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.	Enel X are confident that experienced aggregators can respond to an initial implementation for winter 2026. Enel X recommend a Minimal Viable Product focus on implementation 'guardrails' (principles based versus prescriptive based implementation) while providing the System Operator flexibility in contract structure and discretion in the procurement process to support a learning-by-doing approach.
Q19. Do you agree with the Authority's proposal to set VoLL at $35,305 per MWh for the purposes of the ERS, and proposal to review VoLL and security standards more broadly?	VoLL and security standards are critical 'guard rails' to inform decisions making during an energy transition. Effective 'guard rails' provide System Operators and policy makers with an acceptable operating envelope to support agile decision making in periods of significant and rapid change. The proposed review of VoLL and security standards is a prudent step in this context. Enel X expect the proposal to set VoLL at $35,305/MWh is adequate to support ERS procurement.
Q20. Are you likely to be interested in participating in	Enel X participate in emergency reserve schemes similar to ERS in other jurisdictions. Based on the current ERS proposal Enel X is likely to be interested in participation.

an ERS, such as the scheme outlined in this paper?	
Q21. Are there any other implementation considerations or related issues the Authority should consider in relation to an ERS?	Aggregators are best able to deliver a dependable and specific MW (or MWh) response if ERS event verification is based on an aggregate portfolio basis. Enel X has a robust operational framework, end-user commercial offering, and technology stack to deliver market services utilizing a portfolio of resources. A portfolio verification approach best leverages aggregators capability to provide dependable services at least cost.
Q22. Are there other matters that the Authority should consider in relation to an ERS?	There is a risk that the Authority is underselling the potential benefits of unlocking demand flexibility by focusing only on avoiding uneconomic load shedding. The ability to provide shaping and firming services from flexible demand resources is becoming more important in other jurisdictions where there is additional focus on providing diversity in risk management within the market. The work of the NEM Review Panel in Australia is seeking to establish the fundamental market and contract services needed to support a largely renewable and storage-based power system that embraces demand-side participation. We hope the Authority can find time to review the progress of the NEM Review.