Vector Limited
110 Carlton Gore Rd
PO BOX 99882
Auckland 1149
New Zealand
+64 9 978 7788 / vector.co.nz

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Electricity Authority, Commerce Commission and
Energy Efficiency and Conservation Authority
Wellington

By email: distribution.feedback@ea.govt.nz

Response to open letter on non-network solutions

Executive summary

1. Vector supports the three agencies' objective for electricity distribution businesses (EDBs) to treat non-network solutions (NNS) and reinforcement on an equal footing in planning and investment decisions.
2. We agree network pricing is the critical lever to unlock flexibility and defer least-cost network investment. We have already implemented targeted reforms (e.g., sharper peak windows informed by LV data), and will continue to evolve our pricing as sector capability improves.
3. We propose a layered pricing approach: LRMC-aligned network pricing structures to provide durable investment signals, complemented by targeted SRMC scarcity "adders" where local constraints emerge, within fair and transparent operating envelopes. This approach preserves meaningful behavioural price signals while recognising that some unavoidable component of fixed charges is necessary to recover network revenues.
4. Where we require extra assurance for bankable investment deferral, we will use standardised flexibility tariffs and competitive procurement for contract-activated flexibility. We support standardised product definitions and processes to reduce barriers for providers.
5. Importantly, to avoid over-compensating or inadvertently subsidising contracted flexibility, the value of these contracts should reflect only the incremental value of certainty, availability and duration beyond the flexibility behaviour already incentivised through prevailing price signals. In simple terms, contracts buy reliability of the desired behaviour, not the behaviour itself, and their value needs to reflect that.
6. We will publish clearer signals (constraints, headroom/envelope information, and pricing parameters) in a machine-readable, non-discriminatory manner to support competitive market participation.

7. We are developing a multi-retailer LV pilot to build NZ evidence on participation depth, envelope adherence, and the circumstances under which the combination of sophisticated price-activation and robust operating envelopes can credibly defer reinforcement.
8. We already incorporate NNS options consistently in our AMP decision-making and will enhance disclosures to demonstrate equal footing assessment and outcomes.
9. Finally, we support cross-sector coordination on interoperability and cybersecurity to enable scalable NNS deployment.

Introduction

10. Vector Limited (Vector) welcomes the joint letter (joint letter) to electricity distributors from the Electricity Authority, Commerce Commission and Energy Efficiency and Conservation Authority (collectively, 'the agencies'), on ensuring consumers benefit from efficient investment in non-network solutions (NNS).
11. We strongly support the agencies' recognition that "Consumers will benefit significantly from the use of non-network solutions in delivering the capacity needed for the energy transition and for economic growth." Efficient use of NNS to minimise required capex and opex, thereby improving long-term affordability for consumers, sits at the heart of our Symphony strategy.
12. We also agree with the agencies' definition of NNS as "*alternatives to traditional network reinforcement that address an identified network need*". While the joint letter understandably focuses on flexibility enabled by consumer energy resources (CER), non-network solutions extend beyond retailer-mediated flexibility.
13. The agencies' coordinated approach reflected in the letter – "Through our respective roles, we seek to ensure distribution investment decisions are efficient, forward-looking, responsive to changing system needs and deliver reliable, least-cost electricity for consumers" – is critical. Regulatory alignment across pricing, planning and incentive settings will be decisive in determining whether flexibility becomes embedded in normal network operation or remains episodic and transaction-intensive.

The next few years are pivotal

14. As the letter observes, "If this potential for flexibility is unlocked, it can deliver meaningful benefits for consumers and the system… Non-network solutions can also buy time before committing to major upgrades and allow network owners to refine their forecasting and demand assumptions."
15. Vector agrees. The scale of projected electrification, growth in consumer energy resources (CER) and upstream investment makes planning discipline essential. The system must avoid defaulting to reinforcement where scalable flexibility could defer, reshape or eliminate that need.
16. In the joint letter, the agencies refer to the two main potential activators of NNS:

> NNS may include flexibility services (where electricity use or generation is adjusted by customers or third-party providers **in response to signals or contracts**), distributed energy resource orchestration, demand reduction, distributed generation, energy efficiency, or other commercial arrangements that reduce or shift load so that network upgrades can be deferred or avoided. (our emphasis added)

17. Realising the potential benefits to New Zealanders requires clarity about activation architecture. As set out in Appendix A, we distinguish two complementary activation modes aligned with the agencies' framing above: **price-activated flexibility** (which reflects

underlying price-responsive behaviour – also referred to as "price-responsive flexibility") and **contract-activated**.

18. Appendix A therefore sets out the activation architecture we believe should underpin regulatory settings in New Zealand. It distinguishes clearly between:

    - Price-activated flexibility (an integrated envelopes + sophisticated price-signalling coordination mechanism), and
    - Contract-activated flexibility (a targeted procurement mechanism providing explicit risk transfer and firm delivery of contracted services).

19. We consider this distinction foundational to efficient regulatory design. The remainder of this submission – including our discussion of pricing reform, planning discipline, and the selective use of contracts – should be read through that lens.

Price-activation must be viewed as the primary coordination mechanism for NNS

20. We strongly support the agencies' statement that:

> Pricing is a critical lever for making better use of the electricity network and lowering costs for consumers. When prices clearly signal when capacity is available and when it is constrained, electricity use can shift in ways that reduce peaks and defer network investment.

21. We anticipate with the agencies "*a future where electricity use is price responsive*". In recent years, as we illustrate in Appendix C, this responsiveness is becoming demonstrable and material as retailers' products and capability have evolved. We share the view of the future state put forward by the agencies:

> In this future state, consumers are not expected to actively manage their electricity use day to day. Instead, they choose **retail products and services** that suit their preferences. In addition, **retailers or other customer agents respond to network price signals on their behalf**, using **automation** and **smart technology** to manage assets such as EV chargers, batteries and hot water systems.
>
> Pricing should therefore be **designed to enable and reveal price responsive flexibility over time,** rather than assume it appears automatically or remains static. This requires distributors to look beyond directly controlled load and to **actively test, monitor and refine pricing structures** so they can understand how demand responds and how those responses can increasingly be incorporated into system operation and network planning. (our emphasis added)

22. This should not be seen by the sector as a novel philosophical shift. New Zealand's electricity system design is fundamentally price-based. Wholesale nodal pricing (LMP) coordinates generation dispatch and investment through transparent marginal signals operating within physical network limits, rather than through bilateral contracting with the system operator. Distribution pricing is subject to the same economic principle: prices must be cost-reflective and promote efficient use of the network. As distributed energy resources become more capable and automated, applying this same marginal-pricing logic to distribution networks becomes a *natural extension* of New Zealand's market architecture rather than a departure from it.

23. In this context, a price-activated approach to non-network solutions is simply the distribution-level analogue of LMP: operating envelopes represent the physical network limits, while dynamic and locational price signals allocate scarce capacity within those limits. Where network costs vary by time and location, efficient outcomes require those marginal conditions to be revealed through price signals.

24. Like wholesale markets, however, effective price-based coordination depends not only on efficient signals but also on participant trust. Consumers must have confidence that automated device management and retailer-mediated response will operate transparently, respect consumer preferences, protect data and cybersecurity, and deliver tangible value. Maintaining this trust is therefore an important precondition for deep participation in price-responsive flexibility.

25. In a CER-rich system with automated batteries, EV charging and other controllable load, price-activated (price-responsive) flexibility provides continuous, scalable coordination. However, to be effective, these prices must be combined with transparent, enforceable operating envelopes that reflect physical network limits. With envelopes providing the robust backstop, dynamic and locational pricing can allocate scarce headroom efficiently and induce behaviour that expands usable capacity.

26. As Appendix A explains, price-activated flexibility is not merely "pricing reform". It is a **layered coordination mechanism** in which:

    - Transparent and fair operating envelopes provide enforceable physical boundaries;
    - Dynamic, locational pricing allocates scarce headroom within those boundaries; and
    - Price signals can expand feasible envelopes through portfolio response.

27. This architecture enables constraints to be managed dynamically without the need to pre-commit to fixed MW volumes of contracted response. It is therefore structurally more scalable and adaptive than contract-led procurement for most emerging LV constraints.

Emergency avoidance and response capability underpins a price-activated flex model

28. For this layered model to operate safely, EDBs must also retain clearly defined **emergency orchestration capability**, achieved via the parties managing CER assets. Price signals can coordinate behaviour under *normal* conditions and contracts provide assurance where required. At the extremes, however, distributors require the ability to trigger short-notice override or "shed" responses from parties managing CER, during system emergency events to protect system security. Their use will be rare, bounded, and auditable, and they will not be used for routine congestion management.

29. In addition, increasing levels of price responsiveness introduce new operational risks, including the potential for synchronised demand responses. As discussed further in Appendix C, Vector has observed early examples of this behaviour in response to time-of-use pricing structures, where load shifts concentrate at tariff boundaries and create secondary peaks. As flexibility scales and automation increases, these risks may become more pronounced. Distribution system operation will therefore require appropriate safeguards, monitoring and coordination mechanisms to ensure that aggregated responses do not inadvertently create new system risks

30. In the same way that the Code provides for defined grid-emergency overrides by the system operator, and mandatory AUFLS requirements, these safeguards are not *substitutes* for pricing or contracts; they are simply the **outer safety rail** that **enables greater reliance on price-led coordination**.

Consumer choice will reveal preferences for direct or indirect device management

31. As referenced above, the letter notes that "consumers are not expected to actively manage their electricity use day-to-day. Instead, they choose retail products and services that suit their preferences." Vector strongly supports this framing. Consumers may select full price

pass-through retail products, simplified time-of-use tariffs or simple fixed-price products. They could be totally passive, elect to optimise their CER via a home energy management system (HEMS), or take up device management "as a service" from their retailer or another service provider.

32. Many consumers are already electing for their retailers to manage their hot-water heating and EV charging, reinforcing the future state espoused by the agencies. Retailers report to us high levels of consumer satisfaction with this service.

33. The evolution toward automated device orchestration also depends on maintaining high levels of consumer trust. Consumers must be confident that third parties managing their devices – whether retailers, aggregators or HEMS platforms – will act transparently, protect privacy and cybersecurity, respect consumer preferences, and deliver clear value through lower bills or improved service.

34. Without that trust, participation will remain shallow and the system will not realise the full benefits of price-responsive flexibility. Maintaining this trust therefore requires clear consumer protections, transparent product design, and strong governance around device control, data use and override rights.

35. Critically, and for the avoidance of doubt, the existence of granular upstream signals does not require direct consumer exposure to complexity, or indeed any form of "pass-through" by retailers of EDBs' pricing signals. Instead, it requires capable retailers able to translate those signals into a range of coherent product offerings that enable consumer choice.

The basis of EDB pricing may evolve from LRMC to SRMC over time

36. Pricing should therefore be designed, as the letter states, "*to enable and reveal price-responsive flexibility over time, rather than assume it appears automatically or remains static*." This requires iterative testing, monitoring and refinement. Retail capability must evolve alongside distribution capability to ingest and respond to increasingly granular locational signals.

37. Retailers have consistently emphasised to us the importance of stable, durable price signals to support investment in CER, automation and internal retailer system capability. We agree with them, and the agencies, that enduring signals – particularly those reflecting long-run marginal cost (LRMC) – are necessary to support efficient investment and behavioural change at this stage in New Zealand's CER uptake journey

38. However, durable LRMC signals alone are insufficient to manage emerging localised constraints. In a system with growing automation and elastic resources, short-run marginal cost (SRMC) signals are required as an adder, applied where and when dynamic response is needed.

39. Over time, as participation deepens and automation becomes embedded, the relative weighting may shift from LRMC + targeted SRMC adders toward predominantly SRMC-based coordination in constrained locations. That transition will be gradual and evidence-based. In the interim, enduring LRMC-aligned structures provide the investment anchor, with SRMC signals to be **layered on selectively** to manage real-time scarcity.

40. For these reasons, and consistent with New Zealand's price-based market design, Vector considers that price-activated flexibility should form the primary coordination layer for emerging constraints in a CER-rich, automated system. As a matter of planning discipline, distributors should assess whether calibrated locational pricing (in concert with envelopes) can potentially manage a constraint *before* progressing to contract procurement, recognising that practical capability constraints may limit deployment in the near term.

41. To generate New Zealand-specific evidence on this question, Vector is implementing a live LV orchestration pilot (Appendix D) to test envelopes-plus-pricing coordination across multiple retailers on shared LV assets.

42. A price-led approach must also be implemented in a manner that protects consumers who are less able to participate in flexibility. Durable LRMC-aligned structures, retail product differentiation and proportionate use of SRMC adders are important safeguards to ensure that consumers without automation or flexible assets are not disadvantaged.

43. Preserving consumer choice over exposure to upstream price volatility is therefore central to this model. Retailers, not distributors, determine the degree of customer exposure through product design. A well-functioning retail market is the mechanism through which equity and innovation can coexist.

Equal footing and transparent assessment

44. We support the expectation that "Distributors should treat both non-network and network solutions on an equal footing throughout planning processes, as well as their longer-term strategy for managing their networks … using objective, comparable, consistent and transparent criteria." As set out in chapter 10 of our Asset Management Plan (the latest version of which will be published imminently), this assessment is standard practice in our organisation.

45. We agree that the opportunities need to be "identified early, clearly signalled and given sufficient lead time to be developed and tested so they have a genuine opportunity to address the identified need". Vector has been explicitly signalling flexibility opportunities and emerging constraints through our Asset Management Plans since 2023. To date, we have not received substantive market-led proposals in response to those signals. This reinforces that both providers and consumers are still in the early stages of building capability, portfolios and commercial models for flexibility at scale.

46. In our view, equal footing applies not only between network and non-network options, but also across different activation modes and technical forms of NNS. Price-activated and contract-activated flexibility are **both** NNS. However, they perform different system functions. Price-activation delivers statistical reliability through broad participation, underpinned by enforceable operating envelopes. Contract-activation delivers defined performance obligations and explicit risk transfer.

47. A multi-layered approach requires **all three elements** – pricing, targeted contracts, and physical + emergency safeguards – to be available and clearly delineated.

48. Planning frameworks should transparently document whether price-activation has been rigorously assessed alongside contract procurement, particularly in areas where participation is deep and elastic.

49. For price-activation to operate competitively and efficiently, network signals must be transparent and non-discriminatory. Publication of headroom, envelopes and pricing parameters should be machine-readable, timely and equally accessible to all retailers and market participants. Competitive neutrality is a prerequisite for effective price-based coordination.

50. At present, however, the sector's capability for highly granular, locational dynamic pricing remains **immature**. Retail billing systems, data exchange standards and portfolio optimisation tools are still evolving. In many areas, it may not yet be practical to deploy fully dynamic, transformer-level price signals at scale. A further practical constraint is the current cost and complexity of enabling flexibility at scale. In many cases, unlocking flexibility requires installation or retrofit of smart devices and control systems, which can be cost-prohibitive relative to the value of the flexibility provided. This means that, in the near term, low-cost, readily accessible flexibility is limited. Over time, however, as smart

devices become standard in new installations and replacement cycles, and as interoperability standards improve, the marginal cost of enabling flexibility is expected to fall significantly. Regulatory settings should therefore support the organic growth of "flex-ready" capacity through standardisation, communication requirements and minimum functionality expectations for new devices.

51. In this transitional phase, therefore, EDBs may need to rely more heavily on contract-activated flexibility than would be optimal in a mature price-responsive system. This should be understood as a *capability* constraint rather than a policy preference. As systems, data visibility and retailer automation improve, the relative role of contracts should diminish accordingly.

Use of contracts should be selective and disciplined, with services priced efficiently

52. To this point, Vector and other EDBs have progressed pricing reforms to activate flexibility faster than contracting. This is unsurprising, given distribution pricing frameworks have evolved over decades, and the practice of contracting flexibility is still nascent. This also reflects the reality that contract procurement is inherently more transaction-intensive and less scalable.

53. Contracts remain appropriate where multi-year investment deferral requires defined assurance, where participation is insufficient, or where risk transfer is necessary to support financeable outcomes. Sector-wide, in the near term, contracts may be required more given capability limits on granular pricing.

54. However, where flexibility providers are already responding to wholesale and network price signals – avoiding high prices or being compensated for injection – contractual payments should reflect only the **incremental** obligation, certainty, service or loss of autonomy. Without this discipline, there is a **material risk of over-signalling** value to consumers, over-compensation and distortion of efficient investment signals. In this framework, price signals provide the primary incentive for behavioural response, while contracts procure only the **additional certainty** of response required to support reliable investment deferral.

55. Our views in this response should not be read as dismissive of contracted flexibility services. On the contrary, we recognise that price-activation may not provide sufficient reliability in all contexts; this is precisely why contract-activation remains an essential targeted tool.

56. These services have an important place in any EDB's portfolio of orchestration mechanisms, and this is why we are collaborating with several other EDBs in New Zealand to use the LocalFlex platform to advertise potential contracting opportunities. We endorse standardised procurement templates, and commit to using (and co-developing) common product definitions, baseline methodologies, and performance reporting. As set out in Appendix C, we have also introduced flexible connections for commercial customers, and a scalable low-voltage flexibility contract framework for mass-market connections, in our standard pricing from 1 April 2026 (the "Residential DER tariff").

57. Flexible connections represent a particularly important form of non-network solution, and should be viewed distinctly from bilateral, targeted flex contracts. By allowing customers to accept operating envelopes that are tighter than physical network limits in exchange for lower connection costs, they provide both system efficiency and consumer choice. This is particularly valuable where future capacity requirements are uncertain, as it avoids over-investment in firm capacity that may never be fully utilised.

Broadening the scope of non-network solutions outside of CER flexibility

58. While the joint letter appropriately emphasises retailer-mediated flexibility, non-network solutions extend beyond demand-side activation and contracted response. A comprehensive NNS framework should recognise technical and operational measures that increase usable capacity without traditional reinforcement.

59. Three examples are:

- **Dynamic Line Rating (DLR)**: DLR uses real-time weather and conductor data to determine actual thermal capacity, rather than relying on conservative static ratings. In favourable ambient conditions, this can unlock additional transfer capacity and defer reconductoring or line upgrades without changing customer behaviour.
- **Advanced voltage management**: Coordinated on-load tap changer control, capacitor optimisation and inverter-based voltage response can increase hosting capacity, reduce peak demand through conservation voltage reduction effects, and defer augmentation. These measures improve utilisation of existing assets rather than expanding them.
- **Network reconfiguration and topology optimisation**: Feeder rebalancing, phase balancing at LV and dynamic switching can relieve localised constraints at relatively low cost, extending asset life and avoiding premature reinforcement.

60. These technical NNS sit alongside price-activated and contract-activated flexibility. An efficient planning framework should assess all such options on an equal footing to ensure least-cost outcomes for consumers.

Retail capability and whole-of-system evolution

61. The letter rightly observes that "All key system actors need to play their part in providing the signals, incentives and opportunities that enable participants… to fully utilise their flexibility."

62. Vector agrees. Retailers will need to develop capability to ingest, respond to and productise increasingly complex locational signals. This evolution is consistent with the broader digitalisation of the sector and the increasing automation of portfolio optimisation.

63. The agencies' statement that they are "*similarly focused on other actors in the electricity market*" is therefore important. A price-led architecture depends on coordinated evolution across distributors, retailers and technology providers.

International direction reinforces this direction

64. Appendix B compares two international trajectories:

- The United Kingdom's contract-led, flexibility market model, shaped by RIIO audit and assurance requirements; and
- Australia's price-led, envelopes + tariffs model, underpinned by Recommendation 1D of the NEM Review and Draft Recommendations 5 and 6 of the AEMC pricing review.

65. The key policy difference is which activation mode sits "in front":

66. The UK has built procurement architecture as its primary deferral tool for high voltage assets as they lack low-voltage visibility, have high levels of headroom in their low-voltage networks and are at an early stage of deployment of cost-reflective distribution pricing.

67. Australia is embedding dynamic pricing and operating envelopes as its primary coordination mechanism to manage lower-voltage congestion, with contracts as a backstop. This mirrors the use of marginal pricing as the primary coordination mechanism in their wholesale market design.

68. Stakeholder discussion in New Zealand often treats these activation modes as *substitutes* rather than *complementary* tools with distinct use cases.

69. As Appendix B explains, New Zealand's system characteristics – price-led foundations, growing DER penetration, competitive retail markets, very high smart meter penetration, automation capability and electrification trajectory – align more closely with the Australian paradigm.

70. The choice facing New Zealand is therefore not **whether** to use flexibility, but whether flexibility should be orchestrated primarily through prices, or primarily through procurement.

71. Vector considers the agencies' letter to be clearly aligned with a price-led coordination approach.

Vector's strategy and practical steps

72. NNS sit at the heart of Vector's Symphony strategy. Symphony recognises that integrating DER and orchestrating flexibility is central to delivering safe, reliable and affordable outcomes for customers.

73. This builds on a range of practical initiatives already underway, including low-voltage DER integration trials (such as Kupe Street), smart hot water and EV charging programmes, battery energy storage deployments, flexible connection offerings, and ongoing work on flexibility valuation. These initiatives reflect Vector's active role in developing and testing the practical application of non-network solutions in a New Zealand context.

74. As outlined in Appendix C, we have already implemented significant pricing reforms aligned with the Authority's 2024 direction, including eliminating off-peak charges, better targeting our peak periods to align with low-voltage network loadings, and introducing new flexible connection and "type of use" tariffs to incentivise consistent, reliable load shifting.

75. We recognise that the credibility of price-led coordination ultimately depends on demonstrated performance. We are therefore keen to continue our development in this area, at pace.

76. Appendix D sets out our proposed multi-retailer LV orchestration pilot in Auckland, designed precisely to generate the empirical evidence required to calibrate planning assumptions conservatively. The pilot is explicitly designed to test whether calibrated, locational pricing – supported by transparent headroom information or operating envelopes – can manage emerging LV constraints in a competitive retail environment before reinforcement is required. It will generate empirical evidence on participation depth, retailer response, envelope adherence and the circumstances under which price-activation can provide credible and financeable investment deferral.

Our requests of the agencies

77. Vector supports the agencies' objective to accelerate efficient NNS so consumers benefit through least cost outcomes and deferred/avoided reinforcement where appropriate.

78. Delivering this at scale requires coordinated action on pricing, planning/incentives, market engagement, and enabling standards. We therefore encourage the three agencies to prioritise the following.

Joint, cross-agency actions (reduce uncertainty and friction)

79. Publish a joint 12-24 month NNS roadmap with clear sequencing across pricing reform, procurement standardisation, interoperability/cyber, and reporting/evidence expectations (so sector effort is coordinated and predictable).
80. Standardise "how to procure flexibility" nationally to reduce barriers for providers (common products, baseline/M&V approaches, performance metrics, and template terms), addressing the problem of providers having to navigate many different processes across distributors.
81. Set minimum expectations for open interoperability and cybersecurity for data exchange and signalling interfaces, consistent with the joint letter's emphasis on open protocols, interoperability, and cyber practices to avoid fragmented solutions.
82. Define a shared evidence standard for claiming deferral/avoidance (what "good enough" looks like to rely on NNS in planning): e.g., response reliability, persistence/seasonality, deliverability, and how outcomes are disclosed. This will support consistent treatment through AMP expectations and future regulatory assessment.

Electricity Authority: pricing settings and transition guardrails

83. Provide clearer guidance for both distributors and retailers on the pathway to more cost-reflective, time-varying (and where feasible locational) distribution pricing, aligned with the joint letter's vision of retailer/agent-mediated automation rather than manual consumer response.
84. Clarify transition settings for controlled load and emerging flexibility, including how pricing should reflect controlled load value during transition without weakening broader price signals intended to support flexibility.
85. Reinforce explicitly that, as per the AEMC's draft proposals in Appendix B, EDBs' primary objective in setting prices is to drive efficiency, and to send sophisticated signals for retailers to receive, respond to and repackage. Therefore, in order to meet this primary objective, EDBs should neither attempt, nor be constrained by, individual consumer impact assessment or transition challenges.
86. Issue explicit principles for EDBs' valuation of flex contracts, including that payments should not account for the value of response already incentivised by cost-reflective pricing.
87. Issue explicit guidance to EDBs on how forward-looking transmission infrastructure investment costs, and the value of their potential deferral, should be accounted for in both time-varying network pricing, and pricing of flex contracts.
88. Set explicit guardrails for system emergency event override mechanisms (e.g. rare, bounded, auditable, non-discriminatory), so they remain reliability safety rails and do not become routine EDB congestion management.
89. Reinforce competitive neutrality expectations where distributors participate near flexibility markets, building on the joint letter's emphasis on transparency and robust justification for any in-house solutions.

Commerce Commission: incentives, DPP5/ID, and financeability

90. Provide DPP5/ID clarity on NNS-enabling capability investments (e.g., LV monitoring/visibility, data platforms, orchestration/signalling tools such as DOE and dynamic pricing calculators) so distributors can invest with confidence and pace.

91. Clarify how opex-heavy NNS (including flexibility procurement) will be assessed under expenditure incentives to ensure settings remain genuinely technology neutral and do not bias toward traditional reinforcement (or inefficient contracting).

92. Tighten and standardise “equal footing” disclosure expectations so AMPs transparently compare reinforcement vs NNS options using consistent criteria (NPV/CBA, deliverability, risk/uncertainty treatment), aligning with the letter’s planning expectations.

93. Provide incentives that encourage and reward whole-of-system thinking, reward efficient pricing and AMP disclosures that unlocks flexibility delivers the investment deferral.

94. Clarify how non-performance of retailers and/or third-parties providing contracted flex, or non-compliance of retailers with their agreed load management protocols, will be treated with regard to quality standard compliance.

95. Explore stronger uncertainty mechanisms and better use of recoverable cost mechanisms to deliver regulatory settings that can flex to deliver the right outcomes, rather than being rigid and result in “locked-in” behaviour.

EECA: market development, participation, and evidence dissemination

96. In line with the views expressed in the joint letter, publish a commitment to supporting the full range of consumer choice in flex participation, from device management as-a-service by retailers and others (e.g. retailer-managed hot-water or EV charging) to physical on-site HEMS, and everything in between. We should not be picking winners or blocking particular consumer choices at this point in the CER uptake journey.

97. Support capability building and market development across the sector (provider onboarding, toolkits/playbooks, common evaluation methods) to accelerate practical NNS deployment and learning.

98. Support the development of consumer trust frameworks for device orchestration, including transparency standards, data governance expectations and clear consumer override rights.

99. Target participation barriers and equity so consumers without automation/capital (or those less able to respond) can still share in NNS benefits, consistent with the letter’s consumer outcome focus.

100. Co-fund and help evaluate transferable pilots that build NZ-specific evidence on what works (and publish learnings), supporting faster replication across distributors and providers.

Conclusion

101. Vector strongly supports the agencies’ objective of embedding flexibility into normal network operation.

102. As set out in Appendix A, price-activated flexibility (integrated envelopes + sophisticated prices) is a natural evolution of New Zealand’s existing market design, and provides the scalable coordination architecture required in a CER-rich system.

103. International experience confirms that jurisdictions with deep CER participation are embedding price-led mechanisms as the primary operating model, with contracts used *selectively* for assurance. This aligns with New Zealand’s long-standing reliance on marginal pricing to coordinate efficient outcomes across the electricity system.

104. Contract-activation should remain available as a targeted assurance tool. However, it should not substitute for pricing reform or become the default response to emerging constraints. A regulatory framework that prioritises scalable price-responsive flexibility,

preserves consumer choice and uses contracts proportionately will best deliver least-cost outcomes for consumers.

105. Taken together, this represents a **layered, transitional pathway**:
    i. enduring LRMC signals anchor consumer and retailer investment and behaviour
    ii. targeted SRMC signals (premium / adder) manage dynamic scarcity
    iii. contracts provide assurance where required, and
    iv. physical and emergency safeguards protect reliability at the extremes.
106. Confidence in price-led coordination will build progressively through pilots, transparent performance data and disciplined planning integration.
107. We would welcome further engagement with the three signatories to the joint letter and continue this important conversation.
108. No part of this response is confidential. We are happy for it to be published in full. If you have any questions about this submission or would like to discuss any of the points we have raised, please contact either of us in the first instance.

Yours sincerely

Richard Sharp
GM Economic Regulation and Pricing

Dr James Tipping
GM Market Strategy / Regulation

Appendix A – Price-activated and Contract-activated non-network solutions

This appendix clarifies two complementary activation modes for non-network solutions (NNS): price-activated flexibility and contract-activated flexibility. Both are NNS. The distinction is not about whether flexibility is used, but how it is activated, coordinated and compensated.

In a CER-rich system, these activation modes are not equal in function: price-activated flexibility forms the primary scalable coordination layer, while contract-activated flexibility is a targeted assurance mechanism.

Understanding this distinction is central to ensuring consumers benefit from efficient use of flexibility, consistent with the direction outlined in the joint letter.

1. There are at least two distinct flex activation modes which act as NNS

Price-Activated Flexibility ("Price-Led", or "Price-Responsive")

Price-activated flexibility occurs when:

- Distributors publish cost-reflective network prices (increasingly dynamic and locational).
- Retailers, or other customer agents, ingest and respond to those signals, as well as other upstream signals such as dynamic, locational wholesale prices, on behalf of consumers.
- Automation manages CER assets such as EV chargers, batteries and hot water systems.

In this model, congestion is managed through economic coordination rather than direct control by EDBs. Retailers optimise portfolios in response to network and wholesale signals, and flexibility is delivered through automated response by devices managed by retailers or other customer agents, or consumers responding themselves to time-varying signals presented to them by retailers.

Where operating limits (e.g., Dynamic Operating Envelopes) are in place, these provide the physical safety rail, representing the physical and power quality limits of the network. Pricing then manages behaviour within that rail.

In a CER-rich system with hyper-responsive and elastic resources, pricing becomes a highly effective, localised, SRMC-based coordination tool. It can be calibrated to manage specific constraints before reinforcement is required.

Contract-Activated Flexibility ("Contract-Led")

Contract-activated flexibility occurs when a distributor procures defined MW response (or "network support service") at a specific location, within specified windows, response requirements and performance obligations.

This approach may be appropriate where:

- A constraint is severe and localised.
- Long-term investment deferral requires defined assurance.
- Market participation in the affected area is limited or immature.

Contracts provide defined performance commitments and clearer risk transfer. However, contract-activation is inherently more transaction-intensive and less scalable. It should complement, not displace, price-activation.

For clarity, "contract-activated flexibility" in this context refers to bilateral or competitively procured flexibility services with defined availability and performance obligations. It does not include **flexible connections** (where customers accept constrained access as part of their connection agreement) or emergency system operation actions, which are distinct mechanisms within the broader orchestration framework.

Further, contracts may also be framed around prices or other commercial incentives. But the response is **not optional**, as it is with price-activated or price-responsive flexibility – it is required under the terms of the contract.

Contract payments should reflect only the **incremental value of behavioural certainty**, **availability and duration** beyond the flexibility already incentivised through prevailing price signals. This avoids double-compensation and preserves the integrity of price-activated coordination.

2. Consumer Choice and the Retail Model

A consumer-centric flexibility framework requires choice over exposure to upstream complexity. As the open letter notes, consumers can "*choose retail products and services that suit their preferences. In addition, retailers or other customer agents respond to network price signals on their behalf, using automation and smart technology*".

This means consumers may choose a combination of:

- Full exposure to dynamic wholesale and/or network price signals (e.g., price "pass-through" products).
- Complex or simplified static time-of-use tariffs that bundle all upstream signals.
- Very simple fixed-price products (e.g. constant c/kWh, or fixed bill per month – "all you can eat").
- Direct optimisation of devices via a HEMS, which will optimise against one of the time-varying models above.
- "Device management as a service" from their retailer or directly from a non-retailer aggregator who optimises the device according to their preferences.

All options are valid, and should be on the table. There should be no barriers to any of these models emerging.

Importantly:

- Consumers do not need to face any of the complex upstream signals for flexibility to work.
- The role of retailers is to translate upstream signals into a range of products that suit diverse consumer preferences, and to engage consumers in flexibility where it suits their circumstances.
- Consumers can choose parties other than their retailer to manage one or more devices in their homes, either with or without a HEMS.
- Retail competition exists precisely to offer differentiated products and services.

Price-activation therefore does not imply exposing every consumer to volatility or complexity. However, it does require that upstream signals *exist*, and that retailers have the capability to ingest them, respond to them and package them into products that consumers can select. The degree of

consumer exposure to upstream price volatility is therefore a *retail product design* question, not a network design pre-condition.

This approach is consistent with the agencies' stated objective of enabling price-responsive flexibility delivered through retailer products and automation, rather than direct distributor control.

For this future to eventuate, **retailers' capability will therefore need to evolve alongside distributors'**, to manage increasingly granular, locational and dynamic network signals. That evolution is consistent with the broader digitalisation of the sector and the shift toward automated portfolio optimisation.

3. A layered architecture of orchestration mechanisms: operating envelopes and pricing work together

In practice, DOEs and dynamic network pricing are often **jointly** designed and **jointly** operated, rather than being separate tools.

They can interact in two key ways:

(a) Prices allocate scarce headroom within an envelope framework

Where a transformer (or feeder) has limited import or export headroom, a distributor may publish:

- a total available headroom quantity (import and/or export), and/or
- an allocation framework across retailers (e.g., equal shares, history-weighted, capacity-based, or hybrid).

Within that framework, **prices can be used to allocate headroom efficiently**, for example by:

- asking retailers (or their agents) to **bid for headroom** (explicit allocation via auctions or structured allocation mechanisms), and/or
- using a **dynamic locational scarcity price** that rises as headroom tightens, so portfolios self-select who uses it.

In this model, DOEs and prices are **complementary** ways to manage the same scarcity problem: the envelope sets the boundary conditions; the price determines the economic allocation.

Importantly, this means that distributors are not limited to either "technical limits" or "contracts" when managing constraints; pricing and envelopes *together* provide a dynamic coordination mechanism that can be adjusted in real time. This calibration flexibility reduces the need to pre-commit to fixed quantities of contracted response where the constraint can instead be dynamically managed.

(b) Prices can expand headroom, changing the feasible envelope

Dynamic prices are not only a headroom allocation tool; they can also be used to *create* headroom.

For example, if export incentives are strong during times of constrained import capacity, batteries may discharge (export) and reduce net loading, which can:

- relieve a constraint on the transformer, and therefore
- **increase the feasible import envelope** for customers during that interval.

Similarly, high prices for import reduction can induce load shifting or battery discharge, changing local flows and allowing the distributor to safely publish larger headroom envelopes.

In this way, pricing and envelopes form a feedback loop:

scarcity → higher locational price → portfolio response → headroom increases → envelopes can relax (or tighten) accordingly.

In this architecture, price signals provide the primary incentive for behavioural response, while contracts – where required – procure only the additional certainty of response needed to support reliable investment deferral.

4. Practical framing: "envelopes + prices" as a single coordinated mechanism

Given these interactions, it is helpful to describe price-led orchestration in CER-rich LV networks as an integrated mechanism:

- **Envelopes** provide a transparent and enforceable representation of **local network limits** (including per-retailer allocations where relevant).
- **Prices** (including bidding mechanisms) allocate scarce capacity and induce behaviours that can expand usable headroom.

This integrated approach supports a future where flexibility is coordinated primarily through economic and operational signals, rather than direct distributor control, consistent with the direction set out in the joint letter.

5. Where contracts still fit

This integrated "envelopes + prices" mechanism can manage congestion reliably for many constraints, especially with hyper-responsive CER. Where adherence to envelopes is demonstrably reliable and participation is sufficiently deep and diversified, the integrated envelopes + prices mechanism can provide a credible and financeable basis for multi-year investment deferral.

Contracts remain important where multi-year deferral requires investment-grade assurance, the market is thin, or additional risk transfer is warranted. In those cases, contractual payments should be limited to a premium above the value already realised through price response. Contract payments therefore reflect the incremental value of certainty, availability and duration required to support investment deferral, rather than paying again for the underlying behavioural response already incentivised through pricing.

The key difference between activation modes is risk allocation:

- Price-activation delivers statistical reliability through broad, automated participation.
- Contract-activation delivers defined performance obligations over time.

With deep, elastic participation, highly localised SRMC-based pricing can manage specific constraints effectively, especially in concert with DOEs. In such cases, price-activation should be tested and calibrated before a contract is contemplated.

Importantly, EDB planning practice is inherently risk-sensitive. Before either price-activation or contracted volumes can displace reinforcement in formal investment decisions, distributors must have sufficient empirical confidence that participation depth, response reliability and envelope adherence are robust.

In practical terms, displacement of reinforcement assumptions should be supported by evidence of sustained participation depth, demonstrated response reliability across seasons, and consistent

compliance with published envelopes under stressed conditions. Planning practices should evolve in line with demonstrated performance, not assumed potential.

Until such confidence is established through monitoring and demonstrated performance, prudent planning assumptions will necessarily remain conservative. This is not a reluctance to adopt new mechanisms, but a reflection of statutory reliability obligations.

The role of pilots, shadow pricing and phased implementation is therefore to build that confidence progressively, allowing planning practices to evolve in line with demonstrated capability rather than aspiration.

Contracts remain appropriate where:

- Participation is insufficient.
- Price response is not proving sufficiently certain to continue deferral of investment.
- Specific low-probability, high-risk events create risks to security of supply that cannot be managed through price response (for example because scarcity pricing would be deemed too punitive), and a certain level of "insurance" is required.
- Market power risks are material.
- Defined assurance is required to support financeable deferral.

Contracts should not substitute for necessary pricing reform.

6. Avoiding Over-Compensation

Where flexibility providers are under contract, they will already be responding to price signals:

- Avoiding high network or wholesale prices.
- Receiving compensation for injection or load shifting.

Any additional contractual payment should therefore be limited to a premium or adder reflecting:

- The loss of autonomy.
- The obligation to be available.
- The additional performance requirement.

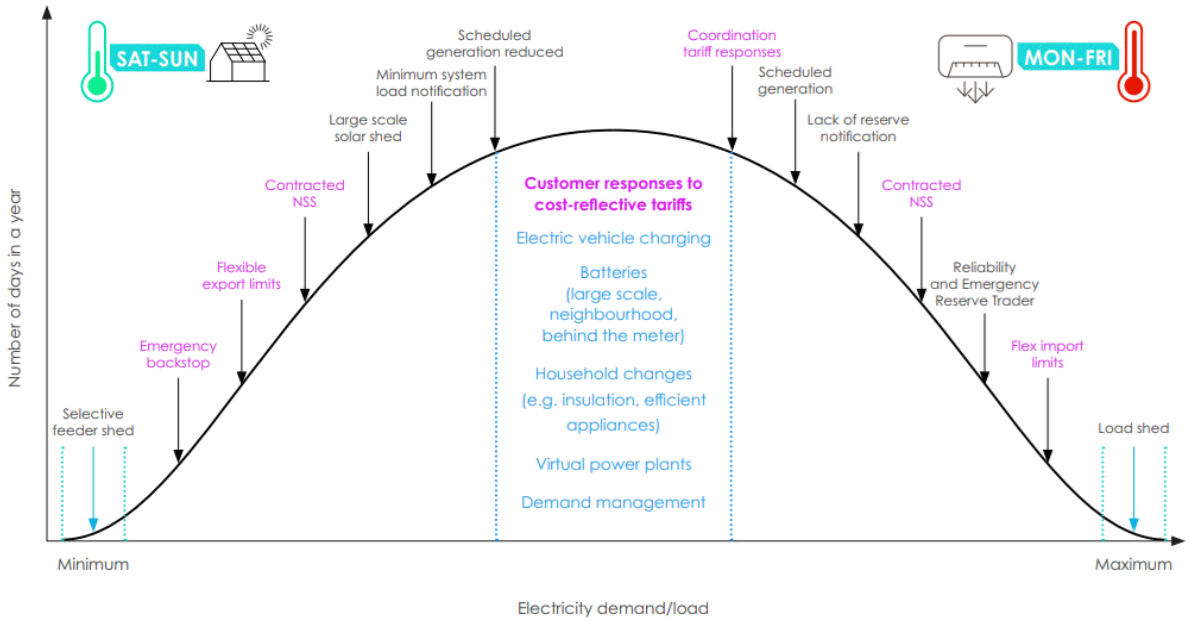
It should not duplicate or substitute for compensation already provided through price signals. This discipline ensures that contracts purchase assurance of behaviour, **rather than duplicating incentives** already provided through efficient price signals.

Without this discipline, EDBs risk over-signalling, consumers risk over-paying for flexibility, and efficient investment signals could be distorted.

7. Operating states and activation layers (Project EDGE illustration)

Figure 8 from Australia's Project EDGE report, replicated below, illustrates how different orchestration mechanisms align with different operating states across a feeder or LV network.

Figure 8 | Range of available measures for managing minimum demand from peak PV exports, and maximum demand event[59]



The horizontal axis reflects loading conditions – from low demand / high DG / high voltage (on the left-hand side) to high demand / low voltage (right-hand side). For most parts of most networks, most operating hours sit in the middle of the curve. More extreme conditions sit toward the edges.

At the far edges sit rule-based and physical safeguards required to protect safety and power quality. These include hard load shedding, emergency backstops, and DOEs, representing enforceable physical limits. These safeguards include emergency orchestration capability – the ability to curtail import or export rapidly where envelopes are breached or where unanticipated conditions threaten system security. The existence of this backstop is what enables and allows pricing and contractual mechanisms to operate confidently across the majority of hours without compromising reliability.

The centre of the curve represents the normal operating range. Here, dynamic and locational pricing coordinates behaviour within published envelopes. Because most hours sit in this region, price-activated flexibility forms the scalable coordination layer of the system, doing most of the orchestration work, most of the time.

Between the middle and the extremes sit mid-edge conditions. In these cases, contracted flex (network support services) may be appropriate to provide defined assurance or support multi-year deferral. Flexible import and export limits are a form of NNS within this safeguard layer, where a counterparty voluntarily accepts a tighter envelope than the physical limit, in exchange for lower connection cost.

This layering reinforces the activation hierarchy: safeguards at the extremes, price-coordination for the majority of hours, and targeted contracts where justified.

8. Implications for Network Planning

To unlock the potential outlined in the joint letter:

- Pricing frameworks should be progressively refined to reveal and grow price-responsive flexibility.
- Operating limits should be transparent and interoperable.
- Retail capability needs to be developed and should be supported to manage upstream complexity.
- Contracts should be used proportionately and only where defined criteria justify them. The values for services should incorporate any existing incentives provided for flexibility which the service providers are already exposed to and are benefiting from.
- Planning processes should treat both price-activated and contract-activated solutions as NNS on equal footing, while recognising their different roles in coordination and risk allocation.
- For each identified constraint, distributors should have the encouragement, licence and flexibility to calibrate, test and extend price-based signals (including locational pricing and envelope settings) to their practical limits before being required to enter into contracted flexibility arrangements.

9. Conclusion

Both price-activated and contract-activated flexibility are non-network solutions and should be recognised as such in regulatory and planning frameworks.

In a CER-rich distribution system, efficient coordination of distributed flexibility should primarily occur through cost-reflective price signals operating within defined operating envelopes, with contract-activated flexibility used selectively to procure the additional certainty required for investment deferral. Contract-activation of flex should be reserved for targeted assurance where investment deferral requires explicit risk transfer or where defined market conditions justify it.

A regulatory framework that prioritises price-activation, preserves consumer choice, avoids over-compensation, and uses contracts selectively will best deliver the efficient, least-cost outcomes for consumers envisaged in the joint letter.

Appendix B – International Direction – Flex Markets (UK) vs Price-Led Coordination (Australia)

Appendix A set out two complementary activation modes for non-network solutions (NNS): price-activated flexibility (envelopes + prices) and contract-activated flexibility.

Internationally, the key difference is which activation mode sits "in front" as the primary operating model. The UK has built a largely contract-led flexibility market architecture; Australia is explicitly steering toward price-led coordination supported by DOEs, with contracts as a backstop.

United Kingdom: flexibility as a procured alternative to reinforcement

The UK's distribution regime (RIIO-ED2) overseen by Ofgem is structured to incentivise DNOs/DSOs to demonstrate efficient network development and operation, including the use of flexibility services as alternatives to traditional reinforcement. Ofgem's RIIO-ED2 framework embeds DSO expectations and reporting, with explicit attention to flexibility procurement and reinforcement deferral.

In practice, this has driven a model where DSOs:

- identify specific constraints and time/location needs,
- run competitive procurements for defined flexibility products,
- contract for availability and delivery with performance obligations,
- and report how flexibility has deferred reinforcement.

This approach aligns with the UK's push for standardised assessment and auditability (e.g., ENA's Common Evaluation Methodology) and Ofgem's guidance on procurement of distribution flexibility services.

Why the UK is not primarily "price-led":

- The regulatory architecture places high value on demonstrable, auditable deferral relative to a reinforcement counterfactual (contracts make this easier to evidence and assess).
- A heavy reliance on highly dynamic, locational retail price exposure is less central to UK reform; procurement provides a direct mechanism for assured outcomes without needing consumers to face volatile upstream signals.
- Lower levels of smart meters mean reform of distribution pricing (to greater levels of time variance) has not been prioritised.
- The institutional model of DSO responsibility and performance reporting has naturally favoured "procure-and-verify" flexibility as the main deferral mechanism.

In addition, the majority of flexibility procurement in Great Britain to date has focused on constraints at higher voltage levels (typically 33 kV and primary substations).

Distribution networks have historically had limited real-time visibility of low-voltage conditions, which makes it difficult to rely on dynamic operating envelopes or continuous price-based coordination at LV scale. In many areas LV networks also retain relatively high levels of capacity

per consumer due to historical design assumptions, limiting the need for explicit LV congestion management. As a result, flexibility procurement has emerged as a practical mechanism for deferring reinforcement at higher voltages while LV operational coordination tools and visibility continue to develop.

Australia: flexibility as continuous economic coordination (DOEs + dynamic network tariffs)

Australia's reform direction is increasingly explicit: distributed energy resources should be integrated into the *existing* electricity market rather than coordinated through separate distribution-level flexibility markets. Local network constraints are expected to be managed primarily through dynamic operating envelopes and dynamic network tariffs, allowing distributed resources to continue participating in wholesale markets while respecting distribution network limits.

Unlike Great Britain, where LV visibility and operational control are still developing, Australian distributors have already deployed operating envelope frameworks at scale for distributed solar exports, creating a practical foundation for coordinating consumer energy resources through envelopes and dynamic pricing.

The Final Report of the *NEM Wholesale Market Settings Review* (NEM Review) includes Recommendation 1D, which recommends not establishing distribution-level wholesale energy markets and instead facilitating distribution-level resources' participation in regional markets, while using **dynamic operating envelopes** and **dynamic network tariffs** to manage local constraints.

In parallel, the AEMC's *Pricing Review: Electricity pricing for a consumer-driven future* (draft report) includes Draft Recommendation 5 (refocusing network tariff design on efficiency and a lowest-cost system) and Draft Recommendation 6 (addressing long-standing rule ambiguity to better enable efficient tariff design and innovation).

Together, these recommendations reinforce the policy direction:

- EDBs need to deliver sharper, more cost-reflective, service-provider-oriented network pricing that supports automated, portfolio-based response. Over time, these prices are expected to become increasingly dynamic and locational, signalling actual congestion (i.e. SRMC conditions), rather than relying solely on LRMC constructs.
- Distribution tariffs in this model are designed primarily as efficient upstream coordination signals, to be received by sophisticated retailers. Consumer-facing impacts are managed **by retailers**, through retail product design, rather than through limitations on distribution tariffs. Where EDBs' tariffs function as upstream signals rather than consumer-facing products, regulatory requirements should be calibrated accordingly to avoid constraining efficient, cost-reflective pricing (including what the AEMC refers to as "side constraints").

109. In concert with dynamic, locational pricing, EDBs need to issue DOEs to ensure device input or output stays within network limits.

- Retailers need to be able to ingest these signals, and work harder <u>not</u> to simply pass-through upstream price signals, and instead develop varied products and ways to engage consumers.

This approach reflects a broader policy principle emerging in Australia: distributed resources should be coordinated through the same price-based mechanisms that underpin the wider

electricity market, rather than through parallel procurement-based flexibility markets wherever this is technically feasible.

While elements of this reform direction remain the subject of active stakeholder debate in Australia, the underlying policy objective – improving coordination of CER through clearer price signals supported by operating limits – is broadly consistent across the review.

Why Australia is not primarily "contract-led":

- With high and growing DER (especially batteries), flexibility is increasingly automated and elastic – well-suited to continuous coordination via prices rather than repeated, bespoke procurement.
- DOEs have become an established solution for managing flexible solar export.
- A contract-led approach at scale can be transaction-heavy and risks fragmenting incentives across parallel mechanisms.
- DOEs provide the physical boundary; dynamic tariffs provide the economic coordination within (and sometimes expanding) that boundary – reducing the need to procure fixed MW for many routine constraints.

Stakeholder debate about AEMC pricing reforms

The AEMC pricing review has generated substantial stakeholder discussion, particularly in relation to Draft Recommendations 5 and 6, which seek to clarify that distribution tariffs should be designed primarily to promote efficient system outcomes.

Much of the opposition expressed in submissions relates to proposals that could increase the share of fixed or unavoidable charges used to recover network revenues. Consumer groups and distributed energy industry participants have argued that a heavy reliance on fixed charges may weaken incentives for efficient demand response and reduce the economic value of distributed energy resources.

Importantly, this debate should not be interpreted as opposition to the use of dynamic or locational price signals themselves. Many of the same stakeholders support the use of time-varying and congestion-reflective price signals where they provide meaningful incentives for flexible behaviour.

The architecture described in this submission differs from the aspects of the Australian debate that have attracted the most criticism. Vector's approach preserves meaningful behavioural price signals by combining durable LRMC-aligned structures with targeted SRMC scarcity adders applied where and when local constraints arise.

In addition, New Zealand's system context differs materially from Australia's. Rooftop solar penetration in Australia exceeds one third of households, which has sharpened debates around cross-subsidies between solar and non-solar consumers. In New Zealand, distributed generation penetration remains very low (approximately 2% of households), meaning the distributional tensions that have shaped parts of the Australian pricing debate are far less pronounced.

The key policy lesson is therefore not that dynamic or locational pricing is contested, but that tariff reform must balance efficient marginal signals with appropriate, efficient revenue-recovery structures.

Why New Zealand should continue to follow a price-led direction (with contracts as targeted assurance)

New Zealand's electricity market architecture is fundamentally price-driven. Wholesale nodal pricing (LMP) coordinates investment and dispatch through transparent marginal signals, rather than contractual direction by the system operator and/or grid owner. Extending this principle to distribution networks – through cost-reflective pricing supported by operating envelopes – represents a natural evolution of the existing market architecture rather than the creation of a new coordination framework.

Retail competition is built on differentiated price exposure and product design. Distribution pricing is also required to be cost-reflective.

In economic terms, this reflects the same principle that underpins wholesale nodal pricing: marginal conditions should be revealed through transparent price signals so decentralised actors can respond efficiently. International debate on pricing reform, particularly in Australia, highlights the importance of preserving meaningful marginal price signals while ensuring that unavoidable network costs are recovered transparently.

In that context, a price-led "envelopes + prices" architecture at distribution level should not be viewed as experimental; it is structurally consistent with the foundations of New Zealand's market design. Where marginal network conditions vary by time and location, efficient outcomes require those conditions to be reflected in price signals, with retailers and consumers responding through automation and product choice. New Zealand's distribution networks, like Australia's, already have growing low-voltage visibility and a competitive retail market capable of translating upstream signals into consumer products, making price-led coordination structurally feasible.

A price-led "envelopes + prices" architecture:

- scales across all consumers, while preserving consumer choice over mandated exposure to complexity,
- preserves consumer choice via retailer product design,
- supports highly localised, SRMC-like coordination where needed,
- and avoids over-reliance on procurement as the default tool.

Contracts remain essential for thin markets, market power risks, and cases where multi-year deferral needs investment-grade assurance – but they should be the targeted backstop, not the primary orchestration mechanism.

Selected reference documents

United Kingdom

- Ofgem – *RIIO-ED2 Final Determinations: Core Methodology*

- Ofgem – *Distribution Flexibility Services Procurement Statement*
- Energy Networks Association (UK) – *Common Evaluation Methodology (CEM) Tool and supporting materials (v3)*
- Ofgem – *RIIO-ED2 Annex I (DSO reporting / flexibility reporting requirements)*

Australia

- DCCEEW – *NEM Wholesale Market Settings Review: Final Report (16 Dec 2025), Recommendation 1D*
- AEMC – *Pricing Review: Electricity pricing for a consumer-driven future – Draft report (Draft recommendations 5 and 6)*

Appendix C – Vector's recent distribution price evolution

This appendix sets out how Vector's distribution pricing has evolved over the past year to better support the use of NNS, particularly price-activated flexibility, and to minimise the need for inefficient network reinforcement. The changes described below form part of Vector's Symphony strategy, which focuses on shaping and shifting load to make better use of existing network capacity and improve long-term affordability for consumers.

Strategic context and problem statements

Vector's pricing evolution has been driven by several converging developments.

First, electrification and the rapid uptake of CER, particularly electric vehicles, are increasingly shaping peak demand on the network. If unmanaged, these loads would materially increase coincident peaks and require substantial investment in network reinforcement. Pricing therefore plays a critical role in signalling when network capacity is scarce and when it is abundant.

Second, retailers have materially increased their use of time-of-use (TOU) retail pricing and automation, including free-hour and peak/off-peak products, and are increasingly managing customer devices directly. This creates a strong opportunity for distribution pricing to work *with*, rather than *against*, retail-led flexibility.

Third, improved low-voltage (LV) visibility has made clear that congestion risk is increasingly local and time-specific. Peak timing varies materially across voltage levels and locations, with secondary peaks emerging at LV that are not always visible at higher levels of the network. Pricing that is too blunt or poorly aligned to these realities risks creating new inefficiencies.

Finally, Vector has consistently heard mixed messages from retailers: a desire for stronger, more cost-reflective signals to support flexibility and automation, alongside a preference for stability, predictability and simplicity in pricing. The challenge has been to evolve pricing in a way that provides meaningful incentives without creating unnecessary volatility or complexity.

Early engagement and design principles

In early 2025, Vector began structured engagement with retailers to explore how evolved distribution pricing could better support Symphony. These discussions deliberately included both the pricing and flexibility teams of retailers, reflecting the reality that pricing reform is as much about operational capability and product design as it is about tariff structures.

Several themes emerged consistently from this engagement:

- Retailers preferred **enduring, long-run price signals** over short-lived or highly volatile signals, to support consumer investment in CER and retail investment in automation, systems and customer propositions.
- **Material peak/off-peak differentials** were seen as necessary for TOU pricing to be effective, though retailers cautioned about the risk of herding behaviour at tariff boundaries.
- Differences in the **timing** of peak demand were viewed as more practical and valuable than fine-grained spatial price differentiation, given current systems and billing constraints.

- Retailers emphasised their role in **managing complexity on behalf of consumers**, rather than exposing households to granular network signals directly.
- There was strong support for evolving "control-style" tariffs that reward reliable device management **by retailers**, provided expectations around performance, restoration and customer experience were clear.

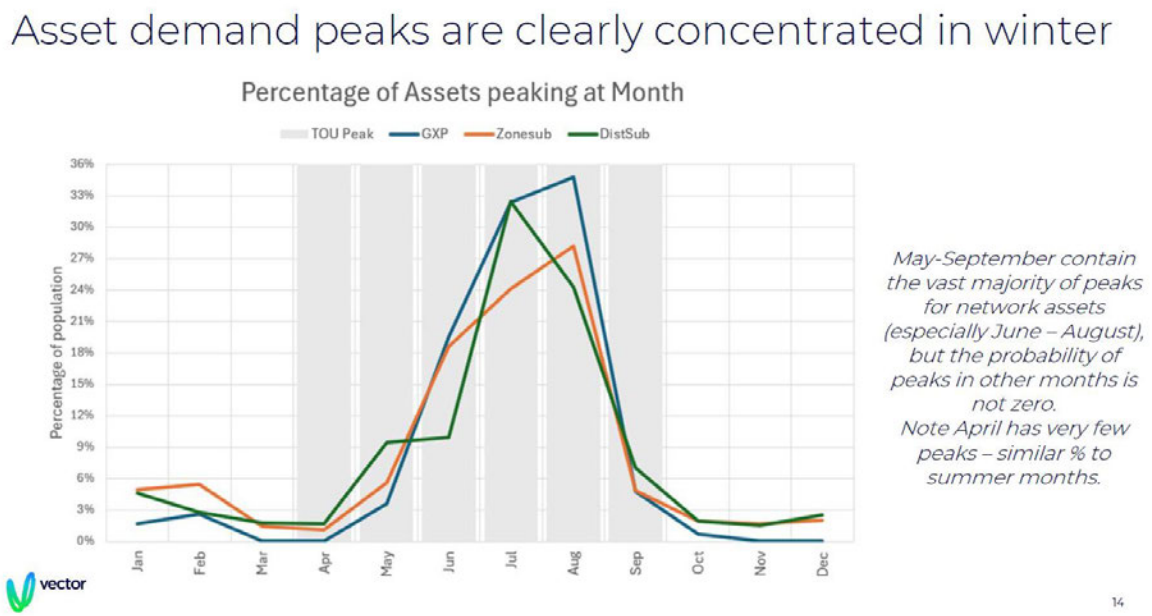
These insights shaped Vector's approach: pricing should be sharper and better targeted where it matters, but stable, predictable and compatible with retailer-led delivery of customer propositions and experience.

Evidence from network load analysis

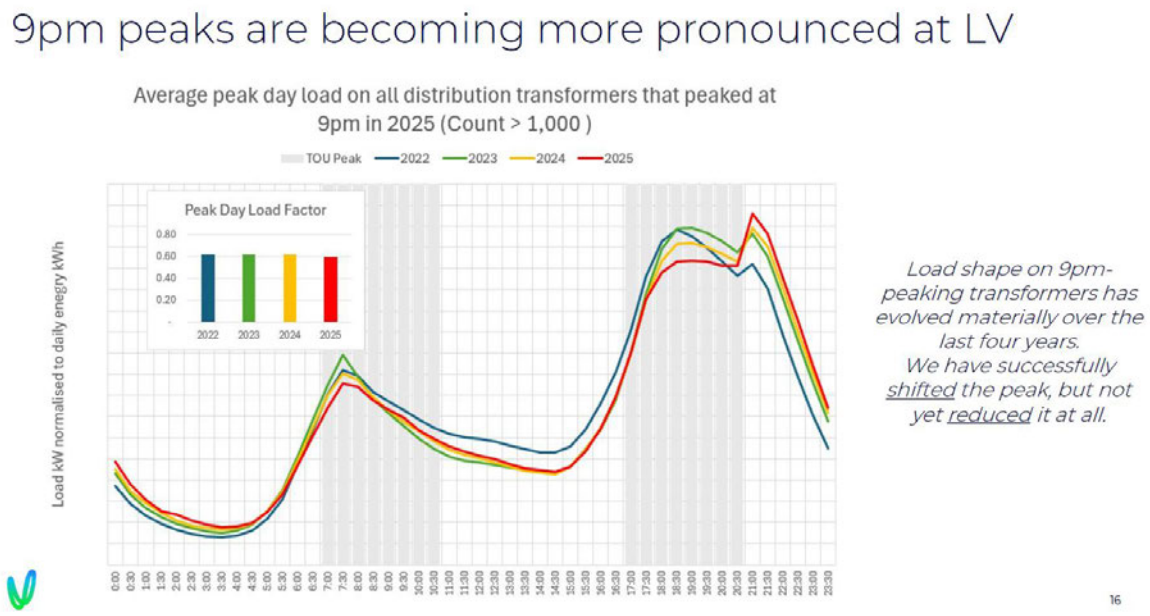
Over the same period, Vector undertook detailed analysis of network loadings using enhanced LV data. Several findings were particularly influential in shaping pricing changes.

Peak timing varies materially by voltage level. At higher voltages, diversity smooths demand and peak timing is relatively uniform around traditional peak hours. At LV, peaks are more variable and secondary peaks are more pronounced.

Network peaks are strongly concentrated in winter months, particularly June to August, but not exclusively. Importantly, a material proportion of LV peaks occur on weekends, reflecting residential load patterns.



Most notably, Vector observed the rapid emergence of a **secondary peak around 9pm** on parts of the LV network. This coincided with the end of traditional peak TOU periods and the start of retailers' popular free-hour offers. While overall peaks had *shifted* later, they had not *reduced* in magnitude, leading to potentially inefficient utilisation of network assets and reduced load factors on some transformers.



Left unmanaged, these trends risk driving localised reinforcement, undermining the benefits of consumer led flexibility.

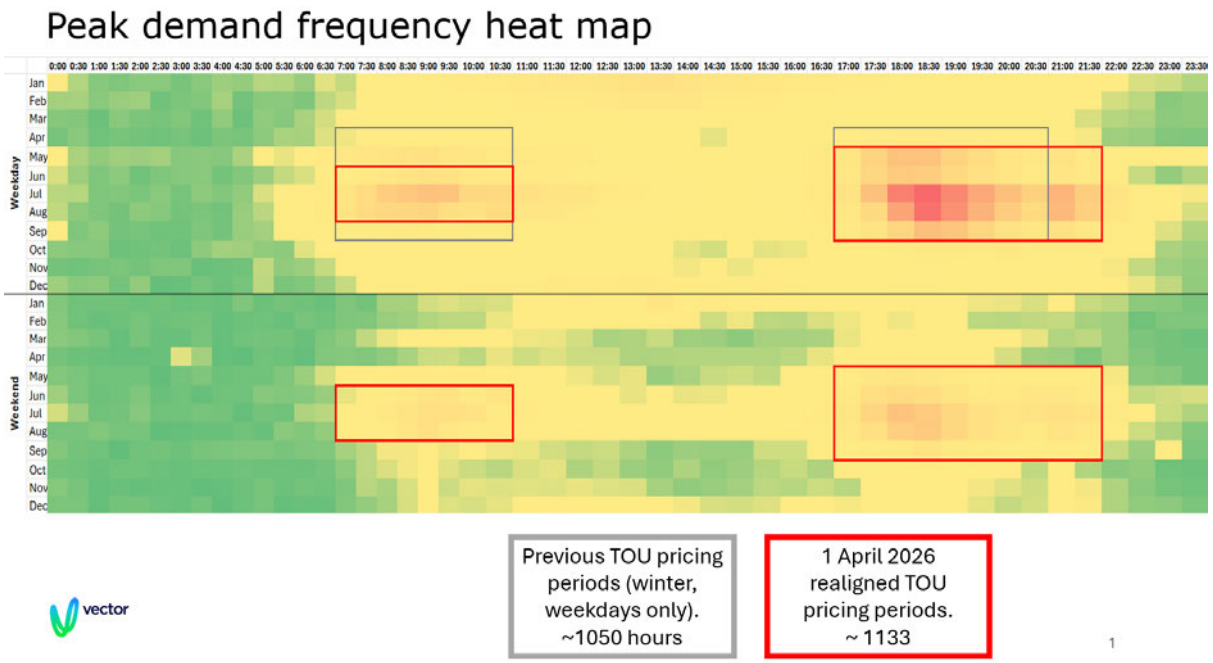
Key pricing changes implemented and proposed

Against this backdrop, Vector progressively evolved its pricing framework.

Zero off-peak pricing was implemented to clearly signal periods of abundant capacity and support load shifting, particularly EV charging and storage charging. This provided a clean foundation for sharper peak pricing without penalising off-peak consumption.

Building on this, Vector **realigned TOU peak periods** to better reflect observed LV network peaks. Peak periods were refined to focus on winter months and extended to include weekends and the 9-10pm period, where evidence showed congestion risk was emerging. At the same time, peak charging was removed from periods and months where LV peaks were no longer evident, creating just three months of winter morning peaks and five months of evening peaks across the year, as shown in the graphic below (down from six months of both morning and evening, previously). This approach strengthened peak signals while reducing unnecessary exposure outside genuine congestion windows.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Morning (0700-1100)												
Evening (1700-2200)												



Vector also evolved its **mass market DER pricing categories** to support retailer-managed flexibility. Eligibility for the Residential DER tariff was expanded to include remotely managed devices such as EV chargers and hot water systems over which Vector does not have direct control. In return for a discounted network price, retailers commit to managing these devices in accordance with published control schedules and performance expectations. This design recognises that reliable, automated load management can deliver network value comparable to traditional controlled load, while remaining consistent with a price led, retailer centric model.

Conditions for Residential DER tariff

Eligibility	ICPs where retailers can **reliably** manage down >1.2kW of load on a **multi-hour basis** (e.g. hot water, EV charging)
Requirements	Load must be managed down in **every control period** we specify (90% compliance)
Control periods	Control periods specified at the start of the year, can be updated **up to three times per year** Max **two control periods per day**, max **four hours per period** For PY27, periods are aligned with our peak TOU periods. Load Management Protocol governs load return
Consideration	**~$50 discount per year** on fixed daily charges. This is akin to a premium for certainty (buying the inability to opt out)
Value-stacking	Retailer also saves by **shifting load out of our peak TOU periods** (another ~$50/year). Wholesale savings on top.
Concept	Sometimes referred to as "type of use" tariff. Could also be considered a readily **scalable LV flex contract**

For **commercial customers**, Vector strengthened its Commercial DER tariff (the "Flex Connect product) by removing demand charges where customers agree to operate within agreed operating envelopes that are tighter than is strictly required based on physical limits. This change responded directly to feedback that demand charges diluted the value proposition for commercial flexibility, and limited uptake. Vector intends for such "flexible connections" with customers to be a key flexibility arrangement going forward, reducing investment in both up-front connection assets and shared network assets.

Finally, Vector implemented **negative injection charges** in line with Electricity Authority requirements, providing a price signal that values injection during peak periods where it can help relieve local congestion and defer investment.

What Vector heard and how it responded

Throughout this process, Vector sought to reflect retailer feedback back into pricing design.

Retailers' preference for durable signals influenced Vector's decision to focus on seasonal and time-based refinements rather than highly dynamic or short run congestion pricing, at least in the short term. Concerns about herding informed the extension of peak periods to cover emerging 9pm secondary peaks, rather than simply shifting boundaries.

Retailers' emphasis on automation and device management shaped the evolution of DER pricing categories, which explicitly reward reliability and consistency rather than ad hoc response.

Equity considerations were also central. Vector's approach avoids mandating consumer exposure to complex pricing and relies on retailers to design products that suit different customer preferences, ensuring that consumers who are less able to invest in new technologies are not forced into disadvantageous outcomes. The fact that retailers are productising Vector's price signals for consumers alongside locational, dynamic wholesale prices is an **enabler** of Vector moving to more cost-reflective pricing, such as the asymmetric peak periods described above.

Alignment with non-network solutions and future direction

Taken together, these pricing changes demonstrate how distribution pricing can function as a core non-network solution. By sharpening signals at times and locations of genuine congestion, while removing barriers to off-peak consumption and automation, pricing enables scalable, price-activated flexibility to emerge.

Vector views this evolution as iterative. Pricing will continue to be monitored and refined as retailer capability, consumer behaviour and network conditions evolve. Importantly, these changes complement, rather than replace, other tools such as operating envelopes and, where necessary, targeted contract based flexibility.

In this way, Vector's pricing evolution aligns closely with the direction set out in the agencies' joint letter: using pricing as a critical lever to unlock flexibility, improve investment efficiency, and deliver better long-term outcomes for consumers.

Appendix D – Vector's multi-retailer orchestration pilot

Purpose and strategic rationale

In collaboration with EECA and several retailers, Vector is developing a live low-voltage (LV), multi-retailer orchestration pilot in Auckland to test whether emerging constraints can be managed through calibrated, locational pricing supported by transparent operating envelopes, before reinforcement is required.

The pilot sits squarely within our Symphony strategy, which places non-network solutions (NNS) at the centre of delivering safe, reliable and affordable outcomes during electrification. Its purpose is not to create a new market layer, but to test whether a price-led "envelopes + prices" architecture can provide credible, scalable coordination of consumer energy resources (CER) in a real LV environment.

The core research question is clear and deliberately practical:

> *Can **dynamic locational price signals**, operating within transparent **physical limits**, reliably **allocate** and **expand** LV headroom across **multiple competing retailers** managing mixed portfolios of imports and exports, while maintaining **network safety**, **system integrity** and **acceptable customer experience**?*

If the answer is yes, this supports a planning framework in which pricing is the first coordination mechanism considered, with contract procurement reserved for targeted assurance where clearly justified.

Scope and design

The pilot will focus on a single HV feeder supplying approximately 12–13 LV transformers and around 1,200 installation control points (ICPs). This "single-feeder test bed" allows dense observation and concentrated CER participation, which international trials have often lacked.

Key features include:

- **Enhanced LV monitoring and topology validation**, to produce credible real-time headroom calculations.
- **Publication of LV import and export headroom** at various points in the network, from feeder to transformer to ICP-level, depending on the efficient level of granularity required.
- **Shadow, two-sided dynamic network prices**, reflecting local scarcity for both imports and exports.
- **Emergency signalling capability**, enabling short-notice "shed" or "cap export" events where required (and providing the capability for future contracted flex services)
- **Off-market settlement**, with shadow billing and performance benchmarking, while retailers remain on standard tariffs.

The emergency signalling capability is a foundational element of the layered architecture described in Appendix A. It is intended for **infrequent use** and functions as a **reliability safeguard** rather than a routine coordination mechanism. The presence of this override capability is what allows greater reliance on price-based coordination during normal operation.

Vector will not control devices. Retailers (and/or their chosen aggregators and OEM platforms) will install and manage CER including EV chargers, hot water control, batteries, V2X and other flexible loads. Our role is to publish credible, machine-readable signals and envelopes; retailers translate those signals into customer products and device-level actions.

The pilot will also provide valuable insight into consumer acceptance of automated device management, including how trust, transparency and perceived value influence participation and sustained engagement.

The architecture is deliberately agnostic as to where optimisation occurs. Retailers may manage orchestration centrally within their portfolio systems, or consumers may use home energy management systems (HEMS) that optimise devices directly against published headroom envelopes and time-varying price signals. The pilot does not privilege one retail model over another.

Why this pilot is needed

International experience has established several important building blocks:

- Static and dynamic export operating envelopes (DOEs) are technically feasible and scalable.
- Retailer- or aggregator-managed device orchestration is workable at scale.
- Dynamic tariffs can shift behaviour.
- Contract-based flexibility procurement can defer reinforcement in defined circumstances.

However, there remain material evidence gaps directly relevant to New Zealand's competitive retail context:

1. **Multi-retailer coordination on shared LV assets**: Most trials have effectively operated with one dominant flexibility provider per constrained asset. There is little empirical evidence on how headroom should be allocated between multiple competing retailers on the same LV transformer.
2. **Joint import and export management**: Export-focused DOEs are now common internationally. There is far less practical evidence on coordinated import and export headroom management across mixed CER portfolios.
3. **Interaction of envelopes and dynamic prices**: Few trials have deeply tested how two-sided locational pricing and operating envelopes should interact in practice – including whether pricing can expand usable headroom and reduce the need for fixed contracted volumes.
4. **Minimum viable complexity**: Many international schemes have accumulated significant integration and governance overhead. There is limited clarity on the minimum signal and interface complexity required to deliver safe, effective LV orchestration in a multi-retailer environment.

The Auckland pilot is explicitly designed to address these gaps.

Phased approach and planning discipline

The pilot is intended to be structured in phases:

- **Phase 0-1**: Establish LV visibility, publish total headroom and test emergency signalling, without dynamic prices.
- **Phase 2**: Introduce shadow, two-sided dynamic locational network prices layered on published headroom.
- **Phase 3** (subject to progression criteria): Explore per-retailer operating envelopes and alternative headroom allocation rules.
- **Phase 4** (optional): Test more advanced headroom allocation or trading concepts.

Progression between phases will be subject to defined criteria relating to safety, participation depth, behavioural response and governance robustness.

This staged design reflects the principle set out in the body of this submission: pricing should be assessed and calibrated first, within physical safety rails, before moving to more transaction-intensive contract procurement.

Alignment with a "pricing first" philosophy

The pilot operationalises the agencies' statement that "*Pricing is a critical lever for making better use of the electricity network and lowering costs for consumers*."

It does so in three ways:

1. **Economic coordination as default**: Retailers respond to locational scarcity prices and envelopes through portfolio optimisation, rather than Vector directly procuring fixed MW response in the first instance.
2. **Envelopes as safety rails**: DOEs represent transparent physical limits. Pricing operates within – and can sometimes expand – those limits.
3. **Contracts as targeted backstop**: Where participation is thin, risk transfer is required, or price-activation proves insufficient, contract-activated flexibility remains available. However, contracts are not the default starting point and are not intended to be tested in this pilot. The emergency-response capability (i.e. "shed now") provides the foundation for future contract-activated flexibility arrangements, if, when and where they may be required.

The pilot will generate empirical evidence on the depth of price-responsive participation achievable in a New Zealand LV context, the reliability of envelope adherence, and the circumstances under which pricing can provide credible investment deferral.

In short, it represents a practical test of whether a price-led, envelopes-supported architecture can be embedded within normal network operation and drive efficient deployment of NNS at the LV level and above.