

As a follow-up to the meeting we had on Friday 22 May 2026, we have the following questions regarding the LV testbed project:

1. While your application indicates that there are not expected to be impacts on Vector's SAIDI/SAIFI performance, what benefits do you expect there to be on the customers experience within the trial area?

Answer:

Vector does not expect the trial to materially change reportable SAIDI or SAIFI outcomes at the system level. The pilot is limited in scale and localised. Installing monitoring equipment will cause some outages. Vector will carefully coordinate these outages and communicate them to customers. Vector expects the trial to test whether increased low-voltage visibility and associated operational capability can measurably improve customer service outcomes. It will also test whether those improvements are material, repeatable, and attributable enough to support broader implementation.

The principal hypothesis is that increased low-voltage visibility can improve customer experience. Improved fault identification, condition awareness, and operational response capability support that outcome. These improvements may matter locally, even where they are not material at an aggregate network-reporting level.

Vector intends to assess customer experience benefits through local service outcomes. These include interruption duration and frequency within the trial area, restoration speed and accuracy, quality of supply, and earlier identification of emerging network issues. The trial will assess whether Vector can address those issues before they cause avoidable customer impacts, specifically:

- reduced duration and frequency of local low-voltage interruptions through earlier event detection, faster fault identification, and more timely restoration action;
- improved quality of supply, including earlier identification of emerging voltage, overload, fuse, or asset condition issues before they develop into outages or sustained customer impact;
- improved accuracy and efficiency of field response. Crews are more likely to reach the right location with better information on the likely cause, reducing repeat attendance and avoidable delay;
- improved visibility of customer-level interruption and service performance, enabling better identification of customer outcomes that existing reporting frameworks do not currently show to the same extent;
- improved ability to assess and manage hosting capacity for distributed energy resources in a way that supports both network security and customer access; and
- improved resilience and safeguarding capability in the trial area, including the ability to support local service continuity measures where these are tested in later phases of the programme.

If demonstrated, these benefits would arise from improved situational awareness and operational response capability. They would not arise from changes to the underlying physical design of the network.

The trial will establish the data quality, trigger settings, communications performance, and operational thresholds needed to use these capabilities reliably in practice. It will also assess whether the resulting improvement in local service outcomes justifies broader deployment.

Vector also expects to assess these outcomes against baseline conditions in the trial area so that any observed customer benefit can be distinguished, as far as practicable, from normal operating variability.

This will provide a more reliable basis for determining whether the tested capabilities deliver genuine service improvement rather than isolated operational observations.

Where Vector observes benefits, it will consider whether those benefits occurred. It will also assess whether it can attribute them with reasonable confidence to the visibility and operational capabilities introduced through the trial. Vector will then assess whether the benefits are material and repeatable enough to support future deployment decisions.

In addition, increased monitoring may support resilience and safeguarding measures. Vector expects to explore these capabilities further in later phases of the programme. That work may occur alongside distributed energy resource orchestration, forecasting, and constraint management functions.

2. What level of engagement with customers and other stakeholders is being undertaken?

Answer:

Vector is planning a substantial customer and stakeholder engagement programme to support delivery of the project.

The trial is highly localised, so Vector considers effective engagement a critical success factor. Engagement will support informed participation and help Vector adapt implementation to community and stakeholder expectations in the trial area. It will also provide evidence on the acceptability, practicality, and implementation implications of the proposed approach.

Vector is currently developing the full stakeholder engagement plan as part of Phase 2. The plan is expected to include engagement with EECA, customers within the trial area, the wider local community, participating retailers, and other relevant delivery partners.

Vector expects to use a hybrid delivery model. Vector's stakeholder engagement team will lead and own the engagement plan. Verian will support selected elements as part of the wider EECA programme, including customer insights research associated with Phase 2.

Vector expects to define stakeholder responsibilities, communications channels, feedback pathways, and escalation processes before implementation activities commence.

Planned engagement activities include a communications campaign, community meetings, direct customer communications, and customer insights research.

This will include information on the purpose and scope of the trial, the nature and timing of installation and monitoring activities, and any actions required from participating customers. It will also explain how customers can raise questions, feedback, or concerns.

Vector currently expects to survey customers connected to the feeder, including customers who may not directly participate in Phase 2. This will provide a broader understanding of community perceptions, customer experience impacts, and the acceptability of the proposed approach.

This will support implementation decisions that respond to stakeholder feedback. It will also help identify issues that may affect feasibility, customer acceptability, or delivery risk for wider application.

Vector expects engagement to continue throughout the design and delivery phases. This will allow stakeholder feedback to inform implementation decisions, identify emerging issues early, and support an appropriate balance between operational objectives and customer experience considerations.

In this respect, engagement will support communications and inform trial governance, delivery, and evaluation. It will also help Vector assess whether the approach is acceptable and suitable for broader application.

3. How is customer satisfaction is being assessed as part of the testbed project?

Answer:

Customer satisfaction assessment will form part of the stakeholder engagement workstream.

Vector will structure this assessment around a defined pre-trial baseline. This will allow Vector to compare customer perceptions with observed experience during, and where relevant after, the trial. It will also allow Vector to assess any change in customer sentiment against a known starting point.

The assessment is expected to include customer insights research and customer satisfaction surveying. These tools will capture customer expectations, understanding of the trial, and service delivery experience within the trial area. Where relevant, this will include customer perceptions of interruption duration, restoration response, quality of supply, communication and engagement quality, and installation, monitoring, and participation activities undertaken by Vector and its delivery partners.

Vector expects this to provide a more complete view of customer experience than a single satisfaction measure. Vector will consider the results alongside operational performance context to build an overall view of service performance.

The assessment will combine quantitative survey results with broader qualitative feedback. This will help Vector understand both measurable shifts in satisfaction and the reasons for those shifts. It will also help Vector distinguish, as far as practicable, between customer experience impacts

from improved operational performance and impacts from the visibility, engagement, and delivery aspects of the trial.

Vector expects the findings to inform trial evaluation and future deployment decisions. This includes whether the observed operational and customer experience benefits are material, acceptable, attributable, and repeatable enough to support broader implementation.

In this respect, customer satisfaction assessment will provide evidence on whether the trial delivers service improvements. It will also test whether the resulting customer proposition is acceptable for wider application.

4. LoRaWAN technology is successfully used by other EDBs, why does Vector consider that the benefits are uncertain enough to require INTSA funding to test?

Answer:

Vector recognises that other EDBs have applied LoRaWAN. However, Vector still needs to test whether the technology can support this project's specific operating requirements, device types, deployment conditions, and scale. Vector also needs to test whether LoRaWAN can support broader implementation on Vector's network at an acceptable cost, risk, and performance level.

Vector is therefore seeking INTSA funding to reduce uncertainty in a way that is proportionate to the potential system value of successful deployment.

In Vector's view, the relevant question is not whether comparable technologies have been used elsewhere. The question is whether the proposed communications and sensing approach can deliver repeatable operational performance, acceptable deployment risk, manageable operating complexity, and an efficient cost profile under Vector's intended operating conditions.

The trial will provide that evidence before Vector makes any broader roll-out decision.

Accordingly, the funded trial will not test whether LoRaWAN works in principle. It will test whether Vector can rely on LoRaWAN in its intended operating context, at the required scale, and with sufficient performance to support operational use and evidence-based deployment decisions, specifically:

The trial will test whether Vector can reduce communications costs while supporting reliable, secure, and scalable monitoring at materially greater scale.

Although others have used LoRaWAN, Vector still needs to test its suitability for this project's specific use cases. Devices may operate in challenging environments, including underground assets, cabinets, enclosures, and electrically congested locations.

In particular, Vector has not yet established that the technology can consistently meet communications reliability, latency, coverage, data integrity, operational availability, and maintenance requirements in these field conditions.

The trial also includes specific device types and applications, including condition monitoring and fuse monitoring. Vector considers that these require further in-situ validation before broader deployment decisions.

Vector are aware of ongoing work by other EDBs to test various use cases of LoRaWAN, including by PowerCo and Westpower. Initial engagements have indicated that the use cases are different, but we recognise that there may be learnings that are applicable across different deployment settings, so we will maintain a dialogue with both parties throughout the project to share findings.

5. What hypotheses are Vector looking to test with the testbed, and what steps has Vector taken to ensure that both pre- and post-trial performance is assessed?

Answer:

Vector intends to use the testbed to evaluate defined technical, operational, and market hypotheses for future low-voltage network operation under increasing distributed energy resource uptake.

The assessment framework will compare pre-trial baseline conditions with in-trial and post-trial observations. This will ensure conclusions rely on observed field performance rather than theoretical assumptions alone. Vector expects the framework to compare data quality, operational response performance, asset condition insights, customer service outcomes, and the practical performance of alternative monitoring and orchestration approaches under field conditions.

In this context, the hypotheses will test whether particular capabilities are technically feasible. They will also test whether those capabilities are reliable, material, operationally practical, and capable of supporting efficient wider deployment.

Where benefits are demonstrated, Vector expects to assess whether those benefits are sufficiently material, repeatable, and scalable to support broader implementation.

Where outcomes differ from the initial hypotheses, the trial will provide evidence on the conditions, limitations, and complementary capabilities needed for those approaches to be effective, specifically:

- whether the proposed level of low-voltage visibility can materially improve load monitoring, asset health monitoring, and operational decision-making under increasing distributed energy resource uptake;
- which locations, device types, and combinations of monitoring are required to deliver that visibility at acceptable cost and operational complexity;
- whether published headroom information is sufficient to support third-party orchestration, or whether additional controls, signalling, or operating rules are required;
- whether Vector can undertake low-voltage network operations and optimisation in an operationally practical, reliable, and acceptable way from both a network and customer perspective;
- the minimum data quality and coverage required to develop validated low-voltage network models for capacity, flexibility, and hosting-capacity analysis;
- the comparative performance and decision-usefulness of operational smart meter data relative to dedicated monitoring equipment; and

- the full lifecycle cost, operational burden, and scalability of different low-voltage monitoring approaches. This includes technology, installation, communications, and operating costs to inform future business case assessment and deployment decisions.

6. How are Vector going to determine the business case and value of the technology trialled for implementation/roll out post-trial?

Answer:

Vector intends to determine the business case for broader implementation through a structured decision framework. The framework will compare the current low-voltage operating model with an operating model enabled by increased visibility, monitoring, and control.

The framework will identify the incremental capabilities delivered by the trial, quantify their costs and benefits, and assess whether they justify wider deployment. It will test whether those capabilities are material, attributable, operationally practical, and scalable.

The assessment is expected to include, at a minimum, the following elements:

- definition of the base case, including the current cost, service, and risk profile for low-voltage network operation with limited visibility and predominantly reactive intervention;
- measurement of trial costs under field conditions, including technology, communications, installation, integration, operations, maintenance, and any incremental delivery complexity associated with scale-up;
- measurement of trial benefits, including customer service outcomes, avoided or deferred reactive responses, avoided or deferred low-voltage reinforcement, improved asset risk management, and any incremental network flexibility enabled;
- comparison of alternative delivery pathways, including smart meter-based, dedicated monitoring, and hybrid approaches, to assess relative cost, performance, coverage, operational practicality, and scalability;
- assessment of which benefits are directly evidenced by trial data, which require extrapolation, and the assumptions and sensitivities that would apply to broader deployment at scale;
- evaluation of interactions between technologies and operating practices, including where benefits depend on combinations of data sources, devices, or orchestration capabilities rather than on a single technology in isolation; and
- translation of trial findings into an implementation pathway. This pathway will identify the combinations of technologies, data, and operating practices required to deliver the identified benefits on an enduring basis.

In this respect, broader roll-out would depend on evidence that the relevant capability can deliver an acceptable balance of customer benefit, network value, operational practicality, deployment risk, and implementation readiness.

7. Could you describe any developments regarding potential future phases of the trial that have occurred following submission of the application?

Answer:

Since Vector submitted the application, it has continued detailed planning for Phase 2, the DER Orchestration Pilot, which remains in discovery. Vector is progressing this work as part of EECA's scaled DER pilots programme. Vector has continued to engage with EECA, other EDBs, retailers, and customers to further define the trial's scope, delivery model, implementation requirements, and phase-progression conditions. As a result, the programme is now more developed in practical delivery terms than it was at the time of application.

For the DER Orchestration Pilot, the core research question is whether dynamic locational price signals can reliably allocate and expand low-voltage headroom across multiple retailers managing mixed import and export portfolios. The signals would operate within transparent physical limits. The pilot will also test whether this can occur while maintaining network safety, system integrity, fair and workable market participation, and an acceptable customer experience. It will assess whether Vector can make network constraints sufficiently visible and actionable to support a more dynamic and efficient operating model without compromising reliability, fairness, or operational control.

The pilot is currently intended to use a phased structure. Each phase will test progressively more advanced operational and market arrangements:

- Phase 0–1: establish low-voltage visibility, publish total headroom, and test emergency signalling without dynamic pricing.
- Phase 2: introduce shadow, two-sided dynamic locational network pricing layered on published headroom.
- Phase 3: subject to progression criteria, explore per-retailer operating envelopes and alternative headroom allocation approaches.
- Phase 4: optionally test more advanced headroom allocation or trading concepts.

Key areas of post-submission development in the trial design include:

- further development of contractual and commercial arrangements for participating retailers, installers, customers, and original equipment manufacturers;
- further definition of data sharing requirements, including the operational and governance arrangements needed to support participation;
- progression of the technical design, including signalling, systems integration, and headroom or dynamic operating envelope calculation methodologies; and
- continued development of stakeholder engagement and communications planning to support implementation.

This work will mature the trial to the point where Vector can finalise funding arrangements, execute delivery contracts, and implement customer subsidy arrangements. Subject to those steps, Vector would then install devices and complete the technical build needed to signal participating devices through retailers.

These steps will reduce implementation risk before the programme moves into delivery. In particular, they will ensure that the commercial model, technical interfaces, customer proposition,

and operating responsibilities are sufficiently defined to support prudent progression beyond the current design stage.

Vector expects these developments to support more disciplined progression into later phases. They clarify the conditions that Vector would need to meet before implementation proceeds, including the maturity of the customer proposition, retailer participation model, technical interfaces, and delivery governance arrangements.

At present, seven retailers are directly involved in design discussions. This level of retailer participation has helped Vector test the programme's practical design assumptions and refine the commercial, technical, and operational arrangements required for implementation.

In parallel, Vector has continued to assess the New Zealand operating context for control capability. It is also working with other participating EDBs to refine the communications protocols proposed for the trial.

On the current design basis, Vector prefers OpenADR 3.0 for Vector-to-retailer signalling. Vector is using this as the working assumption for delivery scoping and cost estimation. The detailed design process will confirm the final approach.

Overall, these developments have reduced design uncertainty since Vector submitted the application. They have also provided greater clarity on the delivery model, implementation dependencies, and likely pathway for later programme phases. Vector expects to lodge an INTSA application for Phase 2 in September. The application will largely include the technical elements that support the trial.