Orion

Innovation and Non-Traditional Solutions Allowance (INTSA) Application
Issued March 2026

NZ LENS –Cable Health Monitoring Trial

Contents

Introduction

New Zealand's electricity distribution networks face growing challenges in maintaining the reliability and safety of low-voltage (LV) assets as the energy landscape evolves. The increasing integration of distributed energy resources (DER), such as electric vehicles, heat pumps, and solar generation, is placing new and variable demands on LV networks. Many cable faults still go undetected until failure, resulting in costly outages, reactive maintenance, and customer disruption.

Traditionally, Electricity Distribution Businesses (EDBs) have limited visibility into the condition of underground LV circuits, often relying on age-based strategies or allowing circuits to run until they fail. This project seeks to trial an innovative solution which claims to provide insights into the likelihood and location of failure, based on pre-fault data. By analysing circuit health and pre-fault impedance, EDBs could better determine when and where to act proactively. Coupling failure likelihood with failure severity could empower EDBs to make informed decisions, optimising resource allocation and reducing customer interruptions.

The NZ Low-voltage Enhanced Network Solutions (LENS) Cable Health Monitoring trial (the project) offers a coordinated, industry-wide approach to contribute to, trial and evaluate an innovative solution to address these challenges through collaboration. Led by EA Technology, the initiative seeks to bring together multiple EDBs across New Zealand to deploy and evaluate VisNet Hubs across New Zealand's LV Networks. Through real-time monitoring, the project will generate the first national dataset correlating LV cable health with cable make, model, age, and regional conditions.

At the time of writing, Orion and Powerco have expressed interest in participating with 20 and 40 VisNet Hubs respectively, and Unison is also intending to be part of the collaboration.

This shared data model allows each organisation to benefit from a wider pool of insights while maintaining full data privacy and ownership. The collaboration will enable participating EDBs to:

- Detect and trend pre-fault activity to prevent cable failures before they occur
- Identify correlations between degradation, environmental conditions, and manufacturer
- Improve asset-health forecasting and renewal-planning accuracy
- Benchmark LV network performance and reliability against national peers
- Gain broader visibility into harmonics, capacity, and DER-driven load impacts

During the project, EA Technology will provide full technical and analytical support; including installation guidance, platform training, monthly data-review meetings, and shared round-table sessions.

Learnings will be shared with other EDBs at events during and after the trial.

Orion intends to evaluate the trialled solution and determine whether the benefits justify the costs of deployment at scale.

We are happy to discuss any aspects of this application with the Commission. The first point of contact for this application is Johnny Lock, Project Manager, Network Transformation [redacted]. No parts of this application are confidential, and we will publish this application in full.

1. Eligibility criteria

1.1. Relates to the supply of electricity distribution services

This project relates to the supply of electricity distribution services because it will trial a new approach to detect and trend pre-fault activity and health of LV electricity distribution assets (specifically LV cables) on the EDB's networks.

1.2. Promotes the Part 4 Purpose of the Act

The Part 4 purpose in section 52A of the Act is to promote the long-term benefit of consumers by promoting certain outcomes that are consistent with outcomes produced in competitive markets, such that suppliers of regulated goods and services:

a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

d) are limited in their ability to extract excessive profits.

This project promotes the s 52A(1)(a), (b) and (c) limbs of the Part 4 purpose of the Act by:

- EDBs collaborating through contributing data to, and testing, an innovative approach to detect and trend pre-fault activity and asset health, enabling targeted maintenance before failure occurs.
- seeking to improve operational efficiency and better asset renewal planning, by providing actionable data on cable health, correlating degradation with cable type, age, and environmental conditions.
- seeking to enable consumers to benefit from lower lifecycle costs by deferring asset upgrades based on actual asset health. Also potentially resulting in better quality of service in terms of reduced outages as a result of cable failure or increasing thermal and loading stress linked to increased use of Distributed Energy Resources (DER).

1.3. Unlikely financial benefit/sufficiently uncertain benefits

This project is unlikely to result in a financial benefit to Orion in the five disclosure years after completion, as the project is a trial that requires collaboration between multiple EDBs and a third-party (EA Technology) to collect and share data and trial a new approach to evaluate LV cable health and improve operational efficiency and better asset renewal planning.

The potential benefits of the innovative EA VisNet Hub LV monitors and predictive model being trialled in this project include:

- Better understanding of condition and load risks of monitored LV cables and transformers, and underground cable health measurements
- Reduction of unplanned service interruptions

- Optimised LV reinforcement investments and operational resource allocation

As this approach and technology has not been trialled before in New Zealand, there is sufficient uncertainty on whether the proposed quality of service benefits and financial benefits would be realised when deployed at scale, compared to our current approach.

The EA Technology LV monitors have a higher upfront and ongoing cost than LV monitors that Orion currently uses, but also propose additional insights and benefits which are difficult to quantify. These uncertainties make a business case more risky than 'business as usual'.

The collaborative INTSA incentivises us to participate alongside other EDBs, with each trialling 10-20 monitors over a range of conditions to more cost-effectively evaluate the innovative solution through collective learnings and data.

2. Project-specific Information

2.1. The project's purpose and EDB's intended steps to achieve that purpose

The purpose of this project is to collaborate with EA Technology and other EDBs to evaluate a new asset monitoring technology (VisNet Hub monitors) and predictive models, on a variety of cable assets and geographic conditions throughout NZ.

This project will allow EDBs to evaluate both the technical solution, and its ability to deliver financial and quality benefits to consumers, and to share collective insights and learnings in the following areas:

- Detect and trend pre-fault activity to prevent cable failures before they occur
- Identify correlations between degradation, environmental conditions, and manufacturer
- Improve asset-health forecasting and renewal-planning accuracy
- Benchmark LV network performance and reliability against national peers
- Gain broader visibility into harmonics, capacity, and DER-driven load impacts

Orion is particularly interested in trialling the LV monitors and contributing data to the collective dataset and model to see if it can help predict and prevent LV network faults through monitoring and analytics. We hope it will help reduce the uncertainties as to whether this technology can provide an indication of Orion's underground cable asset health, and determine opportunities to bring efficiencies to our maintenance and renewal programme.

This project will also allow us to test how the real-time data from the VisHub is monitored, how corresponding insights compare to our current type of LV monitors, and how this solution might work in the future with our new Integrated Asset Management tools (Maximo and ESRI).

Key steps:

EDBs are currently considering their participation in the EA Technology-led trial, with some awaiting a decision on their individual INTSA applications. Once EDBs have signed up to the pilot, there are then several steps planned to achieve the project purpose over the trial period, as indicated in Figure 1 below. The timing of the pilot is proposed to start in early 2026, with an initial 12-month trial of the VisNet Hub LV monitors and cable health data collection and predictive modelling testing. The overall timeframe of the collaborative project, and delivery of outputs such as the final report, will depend on the timing of each EDB signing up to the project and installing the monitors.

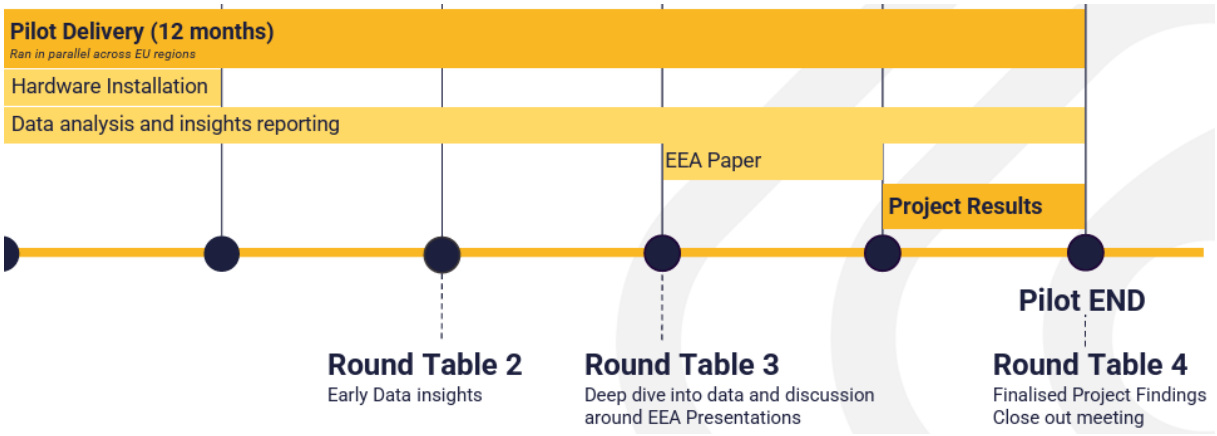

Figure 1: Timeline of EA Technology NZ Lens Project

Planning phase

- Confirm site selection criteria (such as cable characteristics, environmental and regional factors, operational history).
- Identify (10-20) sites for LV monitor installation in each participating EDB's network to prevent overlapping deployment in similar environments and ensure the national dataset accurately reflects NZ's full ranges of LV operating conditions (including a baseline reference circuit).

Hardware installation

- Installation
- Training and commissioning

Data analysis and insights reporting

- Data access setup between Grid Edge and EDB
- Private monthly review meetings and training
- through real-time substation monitoring, the project will generate the first national dataset correlating LV cable health with cable make, model, age, and regional conditions.

Knowledge sharing and evaluation

- 4 round tables with EA Technology and participating EDBs during the trial

2.2.INTSA outputs and expected benefits of the project for consumers

Outputs and timing

The outputs of this project are predominantly learnings and reports which are expected to be delivered during FY27 and into FY28.

Output(s):	Expected date:
Initial Project Trial findings documented	FY27 (May 2026)
EEA conference presentation sharing collaborative findings to date	FY27 (September 2026)
A national dataset correlating LV cable health with cable make, model, age and regional conditions	FY28 (April 2027)
A new methodology for understanding underground cable health on the LV network	FY28 (April 2027)
Close-out report of learnings from project (common and individual EDBs)	FY28 (May 2027)

Table 1: Outputs and expected delivery dates

Customer benefits

There are many potential customer benefits of using the new technology and approach being trialed and evaluated, but it is unlikely that these benefits will be realised unless the solution is rolled-out at scale:

- **Improved reliability & reduced downtime**
    - Detects and trends pre-fault activity, enabling proactive maintenance and preventing cable failures before they occur, reducing outages and customer disruptions.
    - Real-time monitoring and rapid fault location minimise outage duration, with UK deployments showing up to 120-minute reductions in outage times per LV fault.
    - potentially reduce outages as a result of cable failure or increasing thermal and loading stress linked to increased use of DER.
    - reduction of unplanned service interruptions (faster restoration)
    - minimises unnecessary excavations and enables targeted repairs
- **Better affordability due to reduced operational costs**
    - optimised LV reinforcement investments and operational resource allocation
    - reduction of OPEX and optimizing CAPEX through planned interventions.

2.3.Estimated annual forecast costs of project

The forecast costs of this project to Orion would predominantly be upfront in FY26 for the 20 EA VisNet Hubs (LV monitors) and data services for the trial (including project support).

Orion is not applying for any internal costs as part of this project. There may be costs incurred in FY27-28 depending on the outcomes of the trial, relating to data services for an extension of the trial, or removal and decommissioning of the VisNet Hubs.

The full cost of the project will not be known until other EDBs confirm whether they will collaborate on this trial. EA Technology has indicated a minimum trial participant cost per EDB of $40,000 for 10 VisNet Hubs monitors, with intent to trial share findings from up to 100 monitors across the country.

Orion intends to trial 20 monitors and corresponding data services and applications as part of its collaboration in this trial. At the date of writing this application, Powerco is considering investing in 40 monitors and associated costs as part of this project.

Item	Forecast costs Orion FY26	Forecast costs Orion FY27	Forecast costs Orion FY28	Total Orion costs
Hardware (20 VisNet Hub monitors) and data services	$ 80,000	$ 31,000		$ 111,000
Installation and commissioning	$ 17,000			$ 17,000
Decommissioning of units post Trial (if needed – TBC)			$ 25,000	$ 25,000
	$ 97,000	**$ 31,000**	**$ 25,000**	**$ 153,000**

Table 2: Estimated annual costs of project

The forecast costs of the project for each disclosure year are outlined in Table 2. All costs are GST exclusive.

The costs and revenues attributed to the application relate to the delivery of regulated service as defined in section 54C and will be allocated in the appropriate proportions according to the cost allocation IMs.

2.4.Proportion of forecast costs that EDB wishes to recover

A summary of the proposed recovery in this application is provided in Table 3, along with a cumulative allowance recoverable through the DPP4 period. Orion's Innovation and Non-Traditional Solutions Allowance (INTSA) allowance limit is $11.8 million with 25% of that for collaborative projects only.

Orion wishes to apply for 100% of the forecast cost of the project due to the reasons outlined in section 1.3.

Item	**Proportion**	**FY26**		**FY27/28**		**Total**
		Capex	**Opex**	**Capex**	**Opex**	
THIS PROJECT proposed recoverable costs	100%	$97,000	$0	$56,000	$0	$153,000
		Collaborative allowance (0.2 MAR)		**Orion allowance (0.6 MAR)**		**Total Orion allowance (0.8 MAR)**
			$2,950,000		**$8,850,000**	**$11,800,000**
THIS PROJECT			$153,000		$0	$153,000
Previously approved			$285,400		$269,000	$554,400
Remaining allowance			$2,511,600		$8,581,000	$11,092,600

Table 3:Orion INTSA allowance summary

2.5.Collaboration with EDBs

This project is a collaborative project between Orion, Powerco, Unison, and EA Technology (with other EDBs to be confirmed. At the time of writing this application, Orion and Powerco intend to submit INTSA applications, and each EDB would enter into an agreement with EA Technology as part of the collaboration.

During planning of this project, the collaborators have formed a working group to ensure we cover a wider range of cable types and locations. Each EDB would have an information sharing agreement to enable all participants insights into learnings on our selected sites.

EA Technology proposes to facilitate monthly or quarterly meetings, dependant on volume of insights, with all participants. This will be an opportunity for participants to share key or interesting findings from their respective trial locations with each other.

Collaboration and knowledge sharing between New Zealand's EDBs is a cornerstone of the NZ Lens Project. To gain meaningful and representative insights into LV cable health across the country, participating EDBs will contribute data from their monitored assets to form a shared national analysis pool. All submitted data will be anonymised before the release of any findings, to ensure commercial and operational confidentiality. EA Technology will conduct aggregated analysis focused on overarching trends such as:

- Cable type and manufacturer
- Cable age and installation method
- Environmental and regional conditions
- Patterns of degradation and pre-fault activity

Results will not be broken down or attributed to individual EDBs. Instead, findings will be used to highlight industry-wide insights and best practices that can inform each participant's own asset management strategy.

Outcomes will be shared through three structured round table meetings held throughout the project. These sessions will provide a forum for:

- Presenting key trends and aggregated results
- Sharing experiences and observations between EDBs
- Identifying opportunities for collaboration on specific challenges
- Defining next steps and future focus areas for LV network management

This approach ensures that all participants benefit from a larger, more diverse dataset while maintaining the confidentiality of their own network information, creating a foundation for genuine collaboration and collective progress across New Zealand's LV networks.

2.6.Quality standards exclusion

This project is not expected to result in any change to quality performance, and Orion is not seeking SAIDI or SAIFI exemptions for interruptions directly associated with the project.

3. Appendix

Schedule 5.3 requirement		How the requirement is met
Process for seeking Commission approval of an INTSA proposal		
(2)	A non-exempt EDB may at any point prior to six months before the end of the DPP regulatory period submit an INTSA proposal to the Commission.	This application is made before the stated deadline
(3)	If a non-exempt EDB proposes to work together with 1 or more other EDBs to carry out the project or programme in an INTSA proposal, each non-exempt EDB carrying out the project or programme that proposes to recover any of the forecast costs from the non-exempt EDB's innovation and non-traditional solutions allowance must submit an INTSA proposal.	This project is a collaborative project (led by EA Technology) with several other EDBs who will submit their INTSA application separately.
(4)	An INTSA proposal must set out the following:	
(4)(a)	the purpose of the project or programme in the INTSA proposal, and the steps that the non-exempt EDB intends to take to achieve that purpose if the Commission approves the INTSA proposal	Refer section 2.1
(4)(b)	the INTSA outputs and expected benefits of the project or programme for consumers	Refer section 2.2
(4)(c)	the date by which the non-exempt EDB expects all of the INTSA outputs for the project or programme to have been delivered	Refer section 2.2
(4)(d)	the forecast costs of the project or programme for each disclosure year up to the date by which the non-exempt EDB expects all of the INTSA outputs to have been delivered	Refer section 2.3
(4)(e)	the proportion of the forecast costs of the project or programme that the non-exempt EDB seeks to recover from the non-exempt EDB's innovation and non-traditional solutions allowance (e.g., 75% of the forecast costs of the project or programme)	Refer section 2.4
(4)(f)	an estimate of any anticipated SAIDI INTSA values or SAIFI INTSA values that the non-exempt EDB expects to exclude under Schedule 3.1 or 3.2	Refer section 2.6 (N/A)
(4)(g)	the cause or causes of the interruptions for the SAIDI INTSA values and SAIFI INTSA values referred to in subparagraph (f)	Refer section 2.6 (N/A)

(4)(h)	any steps that the non-exempt EDB has taken, or proposes to take, to reduce the likelihood or impact on consumers of any interruptions referred to in subparagraph (f)	Refer section 2.6 (N/A)
(4)(i)	whether the non-exempt EDB intends to work together with 1 or more other EDBs to carry out the project or programme in the INTSA proposal and, if so, how it intends to work together with the other EDBs	Refer section 2.5
(4)(j)	sufficient information to enable the Commission to decide under paragraph (7) whether the project or programme meets the eligibility criteria under paragraph (6)	Refer sections 1, 2, 3,
Eligibility criteria for a project or programme in an INTSA proposal		
(6)	For the purposes of the Commission's decision on whether to approve a non-exempt EDB's INTSA proposal under paragraph (7), the eligibility criteria for a project or programme in an INTSA proposal are that—	Refer section 1
(6)(a)	the project or programme relates to the supply of electricity distribution services;	Refer section 1.1
(6)(b)	the project or programme promotes the purpose of Part 4 of the Act; and	Refer section 1.2
(6)(c)	one or both of the following applies:	
(6)(c)(ii)	the project or programme is unlikely to otherwise result in any financial benefits to the non-exempt EDB in the five disclosure years after the date by which the non-exempt EDB indicates in its INTSA proposal that it expects all of the INTSA outputs to have been delivered:	Refer section 1.3
(6)(c)(ii)	the benefits of the project or programme are sufficiently uncertain that the non-exempt EDB would not carry out the project or programme if it could not recover some or all of the forecast costs of the project or programme from the non-exempt EDB's innovation and non-traditional solutions allowance.	Refer section 1.3
EDB closeout report		
(14)	Within 50 working days of the delivery of all of the INTSA outputs for the project or programme in a non-exempt EDB's INTSA proposal that the Commission has approved under	The closeout report will be submitted to the Commission within 50 working days of outputs being completed (forecast to be by May 2027)

	paragraph (7), the non-exempt EDB must submit a closeout report to the Commission […]	
Limit on innovation and non-traditional solutions allowance for each non-exempt EDB		
(19)	Subject to paragraph (20), the limit on the innovation and nontraditional solutions allowance for each non-exempt EDB for the DPP regulatory period is specified in Table 5.1 […]	Refer section 2.4
Confidential information		
(21)	Where a non-exempt EDB considers that it has a right to confidentiality in any information that it provides to the Commission under this Schedule and the non-exempt EDB does not waive the right, the non-exempt EDB must—	
(21)(a)	include that information in an appendix; and	Refer 'Introduction' (N/A)
(21)(b)	clearly mark the information as confidential.	Refer 'Introduction' (N/A)