

Ref: 26007



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Commerce Commission  
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Dear Ben

### **UNISON INTSA APPLICATION – GRIDADAPT**

This is an Innovation and Non-Traditional Solutions Allowance (INTSA) proposal from Unison Networks Limited (Unison) to the Commerce Commission (Commission) consistent with Schedule 5.3 of the Default Price-Quality Path Determination (Determination)<sup>1</sup>

This application consists of:

- Summary of Unison allowance and INTSA application
- Introduction
  - Purpose of this report
  - INTSA requirements
  - Unison’s commitment to innovation in asset management.
- Project Information: GridADAPT
  - Project purpose and steps to achieve the purpose
- Preparing this application and meeting schedule 5.3 requirements
  - Addressing the Schedule 5.3 criteria
  - Liaison with the Commission
  - Reporting on completed projects and sharing lessons

#### **Internal Unison business value proposition**

Time and efficiency savings for the Networks teams – Success Criteria: At least 10% savings in project planning through using gridADAPT for climate related investment planning.

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<sup>1</sup> Commerce Commission, Electricity Distribution Services Default Price-Quality Path Determination 2025 [2024] NZCC 28 20 November 2025, Schedule 5.3

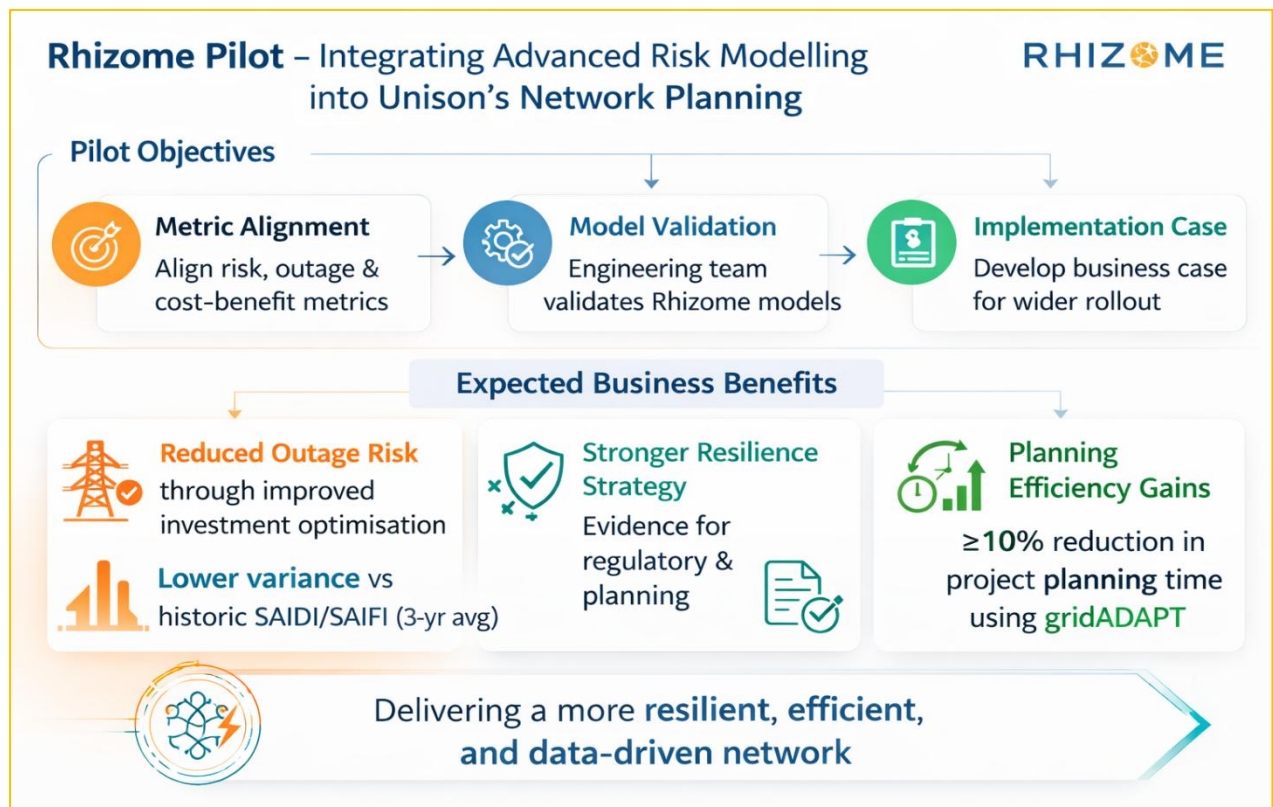
Greater defensibility for resilience strategy – Success Criteria: Validate resilience and model findings with regulator ahead of a next regulatory period.

Outage reduction from improved investment optimisation – Success Criteria: reduction in SAIDI/SAIFI outcomes related to weather relative to the past 3-year historic average.

### Rhizome integration into Unison’s business operations goals

1. Develop business case for wider implementation with other stakeholders.
2. Validation of Rhizome models and approach by the Unison engineering team.
3. Align and validate Rhizome defined risk, outage, and cost benefit metrics.
4. Validate modelling accuracy for climate predictions and asset/network impact
5. Validate anticipated planning improvements

#### Pilot Goals



### Summary of Unison Allowance and INTSA applications

A summary of the proposed recovery in this application is provided in Table 1, along with a cumulative allowance recovery through the DPP4 period. Unison’s INTSA allowance limit is \$7.1 million with 25% of that for collaborative project only.

We are happy to discuss any aspects of this application with the Commission. The first point

of contact for this application is Gaganpreet Chada, General Manager Networks and Operations, [REDACTED]. No parts of this application are confidential

### Summary table

Table 1: Recovery proposal capex and opex

#### Summary table

| Financial summary  | Value (\$)  |
|--|-------------|
| Recovery in this application   | \$90,000    |
| Allowance recovery approved in previous applications – EDB           |             |
| Allowance recovery approved in previous applications - collaborative | \$694,565   |
| Remaining allowance – EDB  | \$5,325,000 |
| Remaining allowance – collaborative                                  | \$843,436   |
| Total allowance  | \$7,100,000 |

#### Eligibility criteria

**Relates to the supply of electricity distribution services.  
Schedule 5.3(6)(a)**

*Explain how your project relates to the supply of electricity distribution services:*

Unison is a provider of electricity distribution services under Section 54C of the Commerce Act because:

1. It conveys electricity by line in New Zealand.
2. These line services are not provided by Transpower.
3. It is not listed as an exception in clause 54C (2) of the Commerce Act.

As a provider of electricity distribution services, Unison Networks is subject to regulation by the Commerce Commission, including Information Disclosure (ID) obligations and compliance with Input Methodologies (IMs).

Under the Electricity Distribution Information Disclosure Determination 2012, Unison Networks is required to regularly prepare and publicly disclose an Asset Management Plan (AMP). The AMP must include:

1. Risk policies and mitigation strategies.
2. Assessment of high-impact, low probability (HILP) events, including extreme weather events.

3. A description of the resilience of the network and asset management systems to such events.

The modelling of impact from extreme weather events supports Unison Networks' ability to:

1. Identify vulnerable areas of the network.
2. Develop and implement risk mitigation strategies.
3. Ensure resilience and reliability of supply.
4. Comply with the Commerce Commission's expectations for prudent asset management and long-term planning.

Therefore, Unison Networks' INTSA application for the Rhizome GridADAPT trial, which will model extreme weather risk, is directly related to Unison Networks' regulated electricity distribution services.

The Rhizome GridADAPT trial directly supports compliance with the Commerce Commission's Information Disclosure requirements and contributes to the delivery of reliable, resilient electricity distribution in accordance with the objectives of Part 4 of the Commerce Act.

#### Promotes the Part 4 purpose of the Act Schedule 5.3(6)(b)

*Explain how your project promotes the purpose of Part 4 under s 52A (1) of the Commerce Act:*

The purpose of Part 4 of the Commerce Act is to promote the long-term benefit of consumers by promoting outcomes that are consistent with outcomes produced in competitive markets, such that suppliers of regulated goods or services have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

1. have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
2. share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and
3. are limited in their ability to extract excessive profits.

The Rhizome GridADAPT trial supports Part 4 of the Commerce Act in the following ways:

#### **Innovation and Investment incentives**

The trial incentivises Unison Networks to innovate by exploring the use of artificial intelligence (AI) – powered applications to enhance extreme weather risk modelling. This supports investment in smarter, more adaptive planning tools that inform long-

term resilience strategies—aligned with the Commission’s expectations for prudent asset management.

### **Improved Efficiency and Service Quality**

If successful, the Rhizome GridADAPT trial will inform a decision on whether Rhizome GridADAPT can be a long-term option for enhanced extreme weather risk modelling. If successful, Rhizome GridADAPT would allow Unison Networks to better identify areas of the network that are vulnerable to high-impact, low-probability weather events. This will inform future expenditure decisions and improve the quality of distribution services, particularly in response to increasing consumer expectations for reliability during extreme weather events.

### **Sharing Efficiency Gains with Consumers**

Any efficiency gains resulting from using Rhizome GridADAPT as a permanent solution to improve planning and target investment will be reflected in Unison Networks’ expenditure forecasts.

### **No Excessive Profit Extraction**

The trial does not provide Unison Networks with any direct financial benefit or opportunity to extract excessive profits. It is a 1-year exploratory innovation initiative designed to understand how new technology could be used to improve long-term planning and service delivery in line with regulatory obligations.

### **Explain how one or both of the following applies: Schedule 5.3(6)(c)**

***The project is unlikely to otherwise result in any financial benefit to the non-exempt EDB for five years following the forecast completion of the project, and/or the benefits of the project are sufficiently uncertain, such that you would not otherwise undertake the project.***

1. *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:*

The project will deliver no financial benefits for Unison Networks for the next five years after the trial is complete.

The project is an evaluation trial that will inform Unison Networks' decisions on modelling for resilience investments.

2. *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 INTSA:*

Unison Networks in collaboration with Horizon Networks understands that they may be the first EDB's within New Zealand and Australia to use Rhizome's GridADAPT software. As innovation Pioneer's, Horizon and Unison Networks will be bearing the uncertainty and risk associated with trying to apply new software and systems to the New Zealand EDB context.

Areas of uncertainty and risk that Horizon and Unison Networks will be accepting by progressing this trial include:

**1. How the asset fragility modelling will apply to New Zealand's unique context.**

The accuracy of Rhizome's models in predicting the probability of asset failures during weather events based on available asset data (asset health, location, material, and age) has not been tested for New Zealand's locational, environmental and asset context.

**2. The impact of data quality on modelling accuracy.** Rhizome's machine learning algorithm relies on historic asset failure data to calculate the probability of asset damage and customer impact. The granularity of information collected when an asset fails has improved over time. This means that more comprehensive information is available for recent failures than is available for historic failures. While Unison Networks has sufficient data to undertake robust modelling, the variation in granularity may influence the outcomes in ways that are not yet known.

**3. Resolution of climate projection dataset.** The default climate projection data Rhizome uses has a resolution of 9km. The publicly available climate projection published by MBIE has a resolution of 5km. Both datasets may limit the ability to identify and model micro-climate variability in the complex terrain in which the Unison Network operates.

## Project specific information

### The project's purpose and EDB's intended steps to achieve that purpose *Schedule 5.3(4)(a)*

*INTSA outputs and expected benefits of the project for consumers:*

#### **Purpose**

The purpose of the Rhizome GridADAPT trial is to enhance Unison Networks toolset, used to plan for and manage climate-related risks to our electricity distribution network.

As New Zealand progresses toward decarbonisation, electricity becomes increasingly critical for economic productivity and everyday life. Improvements to modelling how climate change and asset conditions affect network resilience over time will enable Unison to better mitigate and manage the impact of extreme weather events on consumers.

There are limitations with the existing approach and toolsets that the Rhizome GridADAPT trial can help address. Existing climate risk modelling:

1. does not consider existing and forecast asset condition.
2. is assessed at the asset level and does not provide a system-level impact.
3. requires manual calculations to understand customer impact from weather events at each asset level.
4. is unable to support scenario analysis by varying climate variables or applying mitigations.

### **Unison Networks' steps to achieve this purpose**

Unison Networks will:

1. Contract with Rhizome for a 1-year trial of its GridADAPT service
2. Identify and validate all input data and the required data quality for vulnerability modelling
3. Ingest weather observation, weather reanalysis, and downscaled climate data set
4. Complete implementation of econometrics and machine learning approach
5. Couple the extreme weather projection model with the historic feeder segment fragility model

The outcome of this modelling is the projection of reliability metrics at 10-year increments until 2080. This modelling can then be re-run with different investment scenarios, providing a cost-benefit metric for each investment.

### **Outputs of the project**

The Rhizome GridADAPT trial will deliver an assessment of Rhizome GridADAPT's suitability for long-term resilience planning, focusing on:

1. the applicability of asset fragility modelling in New Zealand's context.
2. data quality requirements and the effect on modelling accuracy.
3. accuracy of identifying network vulnerability and quantifying climate resilience risks.
4. the application of the scenario analysis for planning purposes.

### **Consumer benefits**

The Rhizome GridADAPT trial will allow Unison Networks to make an informed decision on the use of new technology to model climate change. This project delivers efficient decision-making and an improved toolset for climate modelling.

If the Rhizome GridADAPT is successful, Unison Networks will invest in using Rhizome GridADAPT for a longer period. Consumers will benefit from improved long-term modelling and resilience investment decisions, which can lead to:

- **Improved Reliability:** Reduced frequency and duration of outages caused by extreme weather events.
- **Cost Efficiency:** Better-informed investment decisions that balance resilience improvements with affordability.

- **Targeted Solutions:** Identification of vulnerable areas of the network to support the exploration of both network and non-network solutions to mitigate risks.
- **Futureproofing:** A more resilient electricity network that supports New Zealand’s decarbonization goals and adapts to evolving climate conditions.

If the Rhizome GridADAPT trial is not successful, Unison Networks will have gained valuable insights into climate change impact modelling, and consumers will benefit through avoiding long-term investment in promising technology that still needs to be proven to be effective within the New Zealand context.

*Outline the outputs to be delivered in the supply of electricity distribution services by the project, and the expected benefits for consumers:*

***The outputs to be delivered the supply of electricity distribution services by the project***

*As covered in the eligibility criteria section, the Rhizome GridADAPT trial is directly related to Unison Networks’ regulated electricity distribution services.*

*The output of this project is to assess the suitability of GridADAPT for long-term resilience planning with a focus on assessing*

- 1. the applicability of asset fragility modelling in New Zealand’s context.*
- 2. data quality requirements and the effect on modelling accuracy.*
- 3. accuracy of identifying network vulnerability and quantifying climate resilience risks.*
- 4. application of the scenario analysis for planning purposes.*

***Consumer benefits***

*As noted in response to the above question, the Rhizome GridADAPT trial will allow Unison Networks to make an informed decision on the use of new technology to model climate change. This project delivers efficient decision-making and an improved toolset for climate modelling.*

If successful, and Unison Networks decides to implement Rhizome GridADAPT as an enduring solution, consumers will benefit from improved long-term modelling and resilience investment decisions.

**Estimated delivery date for outputs**  
***Schedule 5.3(4)(b) and (c),***

**Outputs:**

A closeout report outlining the outcomes of the project and any insights Unison Networks has gained from undertaking the project, including:

1. the applicability of asset fragility modelling in New Zealand’s context.

**Date:**

*July 2027*

|  |  |
|--|--|
| <ol style="list-style-type: none"> <li>2. data quality requirements and the effect on modelling accuracy.</li> <li>3. accuracy of identifying network vulnerability and quantifying climate resilience risks.</li> <li>4. application of the scenario analysis for planning purposes.</li> </ol> |  |
|--|--|

#### Estimated annual forecast costs of project

##### *Schedule 5.3(4)(d)*

**Set out the forecast project costs on an annual basis until the date by which you expect to have delivered the project outputs:**

The forecast project cost is approximately **\$90,000** (\$45,000 USD) p.a. for one year. The project outputs are expected to be delivered 12 months after engaging with Rhizome (project outputs estimated to be available around **May 2027**) and the closeout report provided to the Commerce Commission 50 business days after this date (closeout report estimated to be available around **July 2027**).

#### Proportion of forecast costs that EDB wishes to recover

##### *Schedule 5.3(4)(e)*

*Set out the proportion of the forecast project costs that you wish to recover. If the proportion is greater than 75%, explain why the project is unlikely to otherwise provide any financial benefits to the EDB within 5 years of the forecast completion date in the EDB's INTSA proposal:*

Unison Networks requests approval to recover 100% of the project costs through this INTSA proposal.

The Rhizome GridADAPT trial will provide no financial benefits within the next five years. This is because the trial is limited to a 1-year evaluation period. This evaluation will inform future decisions but will not provide a financial benefit to Unison Networks. At the end of the trial, Unison Networks will be in a position to decide whether to adopt this technology on an ongoing basis.

Any benefits would be realised through long-term use of Rhizome GridADAPT, and occur outside of the limited, 1-year trial period.

#### Any anticipated SAIDI INTSA values and SAIFI INTSA values

##### *Schedule 5.3(4)(f)*

**Outline any anticipated SAIDI and SAIFI values for interruptions directly associated with the project ('SAIDI/ SAIFI INTSA values'):**

The project is not anticipated to directly impact SAIDI and SAIFI performance.

#### Cause or causes of the anticipated interruptions on SAIDI or SAIFI values

##### *Schedule 5.3(4)(g)*

**Outline the cause or causes of the interruptions for any anticipated SAIDI INTSA values and SAIFI INTSA values, where the cause of each such interruption is directly associated with the project or programme for the INTSA proposal:**

The project is not anticipated to directly impact SAIDI and SAIFI performance.

**Steps taken, or proposing to take, to reduce likelihood of interruptions or the impact of interruptions on consumers**

***Schedule 5.3(4)(h)***

***Outline the steps you've taken, or are proposing to take, to reduce the likelihood or impact on consumers of interruptions for any anticipated SAIDI INTSA values and SAIFI INTSA values:***

The project is not anticipated to directly impact SAIDI and SAIFI performance. As a result, no steps have been taken to reduce the likelihood or impact on consumers.

**Indication of whether project is collaborative**

***Schedule 5.3(4)(i)***

***Indicate whether the EDB intends to work together with one or more other EDBs to carry out the project and, if so, how it intends to work together with the other EDBs:***

This application has been prepared collaboratively. We note that Horizon previously submitted an application independently, with Unison joining discussions only after their submission. Horizon and Unison will share our experience with other EDBs who may decide to consider how Rhizome GridADAPT may be used in their network.

**Other supplementary information**

***Space for the EDB to provide supplementary information the EDB wants to provide that does not fit under any of the previous headings:***

Rhizome's GridADAPT's platform is designed to use machine learning using multiple datasets to identify vulnerable assets under various climate projections. It enables Unison Networks to develop mitigation strategies and analyse risk reduction to cost across multiple mitigation plans over a set time period.

The Rhizome GridADAPT trial will include the following stages:

**1. Distribution network input data preparation:**

- a. Identify and validate all input data and the required data quality for vulnerability modelling. The dataset could include network topology, connectivity, customer impact, historical outage, asset failures, and asset health. The dataset will be transformed into the platform's internal domain model within the model staging environment.

**2. Model implementation:**

- a. Ingest weather observation, weather reanalysis, and downscaled climate data sets for the selected service area to forecast the return period of extreme weather

variables such as temperatures, humidity, precipitation, and wind for 10-year increments.

- b. Complete implementation of econometrics and machine learning approach to understand the likelihood and consequence of failure to feeder segments from various types of extreme weather physical hazards. The model results will produce annual outage/reliability metrics as a result of hazards that are observed in the Unison service area.
- c. Couple the extreme weather projection model with the historic feeder segment fragility model to generate the likelihood and consequence of future failure of each segment within the pilot. The end of this modelling will result in the projection of reliability metrics at 10-year increments until 2080.
- d. Model the change in projected outages for each investment selected for evaluation for each feeder segment for the selected feeders. The result of this model will be a cost-benefit metric for each investment-segment location.

### **3. Validation, Closeout, and gridADAPT Evaluation**

- a. Complete validation and develop validation metrics related to extreme weather projection analysis and asset fragility analysis.
- b. Incorporate the outputs into climate risk and cost-benefit analysis.
- c. Evaluate Rhizome GridADAPT and complete the project outcomes report.
- d. Complete and submit the project closeout report.

## **Preparing this application and meeting schedule 5.3 requirements**

### **Liaison with the Commission**

We note that Horizon has previously engaged with the Commission to outline the project's intent and scope, and that the Commission has approved Horizon's corresponding application. If the Commission requires further information for its evaluation of the project, we will happily provide more details or arrange further meetings with the project partners, including Horizon.

### **Reporting on completed projects and sharing learnings**

The Commission has emphasised the focus of the INTSA to encourage projects with learnings that will benefit NZ Inc. We acknowledge that reporting on the projects and sharing learnings with other EDBs is critical. Should this application be successful, Unison anticipates the following activities to share learnings:

- Prepare report as required by Schedule 5.3 (14). The report will be made available on our website and also to Goggle for further dissemination.

- Share updates on our application, key findings and related reports on our website and social media channels
- Present an overview of the project and key learnings to a suitable ENA or EEA or other industry forum to raise awareness amongst all EDBs. For example, an ENA Future Networks Forum Innovation meeting would be an ideal venue.
- On the successful implementation of the platform, we will inform our wider customer base of this. This is to encourage flexibility offers and help develop an active market for flexibility services.

### **Conclusion**

Unison has an active strategy, to ready for the changes in the energy sector ahead. This includes taking an active role in identifying and testing non-traditional solutions and new technology. This will not only be an integral part of operating our future network, but it will also provide longer-term outcomes for our customers.

Yours sincerely



Gaganpreet Chadha  
**General Manager**  
**Networks and Operations**