
GRIDAWARE: KEY FINDINGS REPORT

On 11 July 2025, the Commerce Commission approved Vector's application for funding under the DPP3 Innovation Project Allowance for the GridAware project.

This report sets out Vector's key findings for the GridAware project in line with the requirements of clause (5) of Schedule 5.3 of the DPP3 Determination.

Vector and Tapestry have also previously shared findings from GridAware in various forums including:

- Hosted several EDBs and the Commerce Commission at its offices in late 2024, which resulted in a number of EDBs that attended the session to subscribe to the platform; and
- An ENA Future Networks Forum webinar with Tapestry in November 2024.¹

Other publicly available material includes:

- Tapestry, *Vector case study*: <https://www.tapestryenergy.com/en/projects/tapestry-and-vector>; and
- Tapestry, *AI powers a more resilient grid in New Zealand*: <https://www.tapestryenergy.com/en/projects/ai-powers-a-more-resilient-grid-in-new-zealand>

Overview

The GridAware Project involved Vector collaborating with Google X's 'Tapestry' to implement the GridAware platform for Vector's network. GridAware uses Google Street View images and EDBs own images to create a system of record for images of assets from multiple angles and over an extended timeframe. GridAware uses this comprehensive asset database to apply multi-visual models to predict asset health and propensity to outages.

Vector has developed GridAware to the point we have been using it to support the Drone and Helicopter inspection programmes since February this year. During this time we have completed surveys on ~43,000 poles with over 130,000 images ingested for both annotation of the images and Machine Learning purposes.

The feedback from our inspection partners has been positive with the highlights being;

- Ease of use
- Ability to see defects previously unavailable
- Speed to identify and process

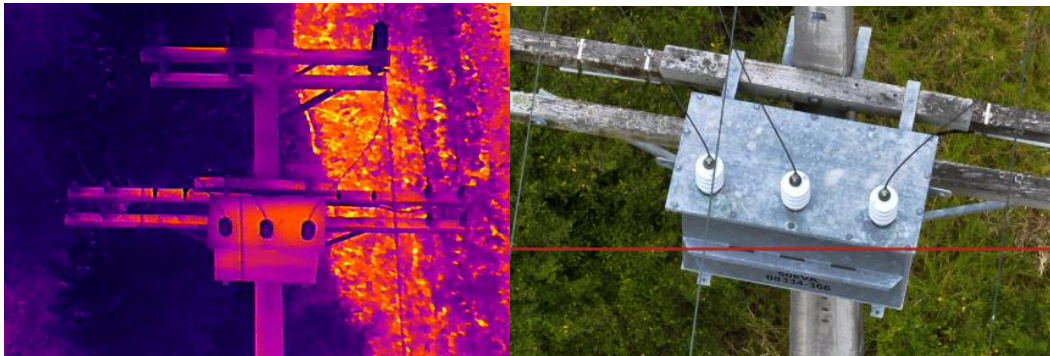
In addition to utilising the program and images for defect identification both inspection partners have been using the images for the planning of response works. Previously, under the old regime, only defects were identified with low quality images however now due to the revised scope of complete

¹ Recording available here: <https://www.youtube.com/watch?v=SpnSx1dOEAK>

visual library of assets GridAware can be used for the planning and scoping of works meaning a reduction in the requirements for site visits and less truck rolls.

Case studies of Vector's use of GridAware

Thermal and Image of Transformer



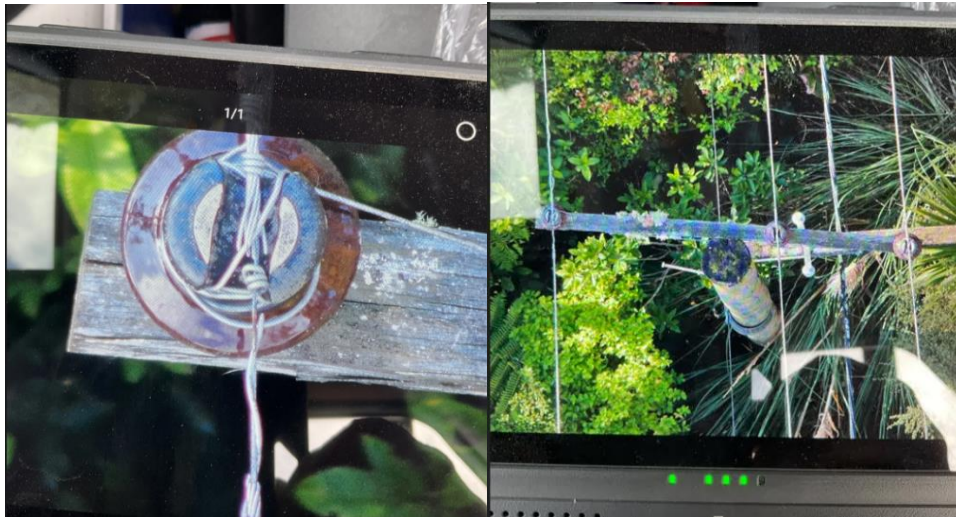
Overhead defect – unable to be seen from the ground



Reviewing the drone footage in conjunction with this acoustic information showed there was a partial discharge fault with this insulator causing aging to newly replaced conductor. It is the original insulator and was not replaced during a previous fault repair when the cable broke and fell. Originally the root cause was attributed to conductor but use of the new technology identified the actual cause and allowed for the correct remediation.

Overhead defect

During inspection of drone footage through GridAware one of our Inspectors identified a conductor that had functionally failed and was in danger of causing an outage. The location of this asset was in dense bush making identification all but impossible. The asset was repaired prior to failure in a planned and coordinated manner proving the new technology, process, and tools for inspections are working as planned.



Next steps

GridAware is being further developed, bringing in additional data sources to aid in planning and analysis as well as a complete refresh of the user interface.

Additional enhancement of the GridAware product will be the subject of an upcoming INSTA funding request. The subject of this will be the integration of LiDAR technology to allow Line Clearance, ECP34, and Vegetation management to be incorporated allowing for a fully inclusive end to end maintenance program coordinating activities and improving the customer experience.

Key findings

1. **Ease of Use:** The platform's user-friendly interface has been positively received, making it easier for inspection partners to use.
2. **Enhanced Defect Visibility:** GridAware has improved the ability to see defects that were previously unavailable, leading to better defect identification.
3. **Faster Processing:** The speed at which defects are identified and processed has increased, allowing for quicker response times.
4. **Improved Planning:** The use of high-quality images for planning and scoping works has reduced the need for site visits and truck rolls.
5. **Successful Defect Identification:** The platform has successfully identified hidden defects and prevented outages by detecting early conductor failures.

Vector learnt the following in implementing GridAware:

- **Simplified Data Integration:** Only essential data should be integrated. Previously, large SAP data tables were used when only a small portion was needed; streamlining this has accelerated data flow and simplified processes.
- **Minimal Training Needed:** The system's intuitive design reduced training requirements, but clear communication of new maintenance standards was vital to ensure consistent prioritisation of defects for machine learning.

- **Optimised Inspection Resources:** Fewer and more specialised inspectors are now necessary. Dedicated drone pilots focusing solely on data capture, paired with office-based inspections, proved to be the most efficient approach compared to ground-based inspections.