DPP3 Innovation Project Allowance Application

Commerce Commission

May 2025

POWERCO

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1. Summary of Powerco allowance and FY 2025 drawdown proposal

A summary of the drawdown proposed in this application is provided in Table 1, along with a cumulative allowance recovery through the DPP3 period. Powerco's Innovation Allowance limit is $650,000.

Table 1 Drawdown proposal capex and opex

	Description	Purpose	FY25 cost		FY25 drawdown proposal	FY24 drawdown approved
			Capex	Opex		
Aeolian vibration monitoring and prediction	Develop and test new solar-powered monitoring devices and software. A Line Guard from Sentrisense tests susceptibility to damage due to conductor vibration.	Proactive and efficient management of aeolian vibration risks including automatic fault classification, location detection and prediction. Potential to reduce outages, estimate conductor life, and lower maintenance cost.	$22,286	$42,042	$32,164	$77,846
Line down detection	Develop and test monitoring equipment and AI analysis with Eneida and ElectroNet to detect when lines are down and still live.	An engineering control for targeted fault response of lines down. Provides improved public safety and reduced environmental risk targeting of Powerco fault response efforts.	-	-	-	$89,084
Satellite intelligent vegetation management	Develop and test the use of satellite imagery and AI technology to provide a cost-effective risk/criticality based prioritisation methodology.	Take advantage of improved satellite technology and advancing AI. Test an alternative to LiDAR to improve risk understanding, prioritise work, and increase reliability and safety.	$1,689,900	-	$375,906	$75,000
Total drawdown			99%	1%	$408,070	$241,930
Total allowance					$650,000	

2. Introduction

2.1 Purpose of this report

This is Powerco Limited's ("Powerco", "we") application for the Innovation Project Allowance, for two projects with costs incurred in FY25. This report collates the information required for the Commerce Commission (**the Commission**) to be satisfied that the projects meet the requirements for drawdown of the innovation project allowance for FY25.

This application covers additional project phases for two projects we commenced in FY24, that were approved by the Commission for drawdown of innovation allowance for FY24, and progressed into additional phases in FY25 (as foreshadowed in our FY24 application):

- Aeolian vibration monitoring and prediction
- Satellite based intelligent vegetation management.

The third project approved for innovation allowance drawdown for FY24 did not progress into phase 2 during FY25 due to competing priorities and the need for the small team involved in the project to focus on other activities in FY25. We still intend to progress the Lines down detection project into network trial in FY26. We are scoping the next phase of the project and may submit an application under the DPP4 Innovation and non-traditional solutions allowance.

We are happy to discuss any aspects of this application with the Commission. The first point of contact for this application is Irene Clarke Policy Manager, Irene.Clarke@powerco.co.nz. No parts of this application are confidential, and we will publish this report in full.

2.2 This application is supplementary to our FY24 application

In our application made in June 2024 for FY24, we advised that all three of the projects in that application would continue after FY24 and stated our plan to put in a further application to the Commission after FY25 to confirm the FY25 activities and proposed FY25 drawdown. We also noted our future FY25 application would be supplementary to the FY24 application rather than a completely new application, as the detailed project information remains the same – including assessment of costs/benefits, delivery and outputs. Our FY24 application, dated June 2024, is available on our website (Powerco FY24 innovation allowance application)[1].

2.3 Provisions for the innovation allowance

Under the DPP3 Determination, Electricity Distribution Businesses (EDBs) may make an application to the Commission for approval of drawdown of the allowance under Schedule 5.3 of the Determination[2]. This report is guided by the requirements in Schedule 5.3. We have provided an assessment against Schedule 5.3 in section 5 and Appendix 1.

The initial project information was reviewed by Edison, an independent electricity lines specialist, against the Schedule 5.3 criteria for our application made in June 2024. This review remains valid for the same two projects submitted in this FY25 application.

[1] We reference our FY24 application throughout this FY25 application. Our previous application is available on the Commission's website and on the Powerco website here Powerco FY24 innovation allowance application

[2] The 2020 DPP Determination was updated to include Powerco's transition in November 2022: 5B20225D-NZCC-25-PowercoE28099s-transition-to-the-2020-2025-DPP-Final-determination-30-November-2022.pdf (comcom.govt.nz) The Commission also updated Schedule 5.3 in November 2023 to update clause 5.3(2)(c) relating to the specialist report. Electricity-Distribution-Services-Default-Price-Quality-Path-Innovation-Project-Allowance-Approval-Criteria-Amendment-Determination-2023.pdf

An 'innovation project' is one which is focused on the creation, development, or application of a new or improved technology, process, or approach in respect of the provision of electricity lines services[3].

The two projects in this application are developing and applying new technology and processes, to electricity lines services. The projects aim to deliver electricity lines services at a lower cost to consumers and at a higher quality, compared to traditional practices. The technologies being developed with these projects will be relevant for electricity lines services provided by all EDBs.

The full Powerco drawdown available under Schedule 5.3 is $650,000 through to FY25. This application is for drawdown of $408,070 completing the full drawdown of the available allowance.

2.4 Powerco's commitment to innovation and customer outcomes

Alongside Powerco's core investment in network development, we have an active strategy to ready ourselves for the changes in the energy sector ahead. An underlying direction for our Strategy is to drive innovation and longer-term outcomes for improved energy services and value for money for our customers.

While the way we build and operate our electricity network is generally stable, we are continually looking for ways to improve and adapt to material changes in our operating environment. Our evolving strategies are mainly centred on three overlapping aspects:

- Adapting to changes in network and customer technology
- Adapting to a changing operating environment, driven by changing customer needs as well as environmental and legislative changes
- New ways of thinking about traditional asset management approaches.

Chapter 7 of our Asset Management Plan 2023 outlines our evolving asset management strategies[4]. Our 2024[5] Asset Management Plan update further develops our 'Future-Ready Networks Strategy' and 'Modernised Network architecture Strategy'[6]. A modernised network architecture strategy is a commitment to our customers about what we plan to achieve with our future electricity network to make it more efficient and resilient, adopting the benefits of new technology and emerging market opportunities. The two projects that are the subject of this application are part of this network evolution towards a future intelligent network.

Figure 1 Powerco's objective for future-ready networks is supported by three network strategies

[3] Input Methodologies Determination, Interpretation section 1.1.4: electricity-distribution-services-input-methodologies-determination-2012-consolidated-as-of-23-april-2024.pdf (comcom.govt.nz)
[4] 2023-electricity-asset-management-plan.pdf (powerco.co.nz)
[5] While Powerco has since published a 2025 AMP update, it is the 2023 AMP and 2024 AMP update that are relevant for FY25.
[6] 2024-electricity-asset-management-plan---update.pdf (powerco.co.nz)

3. Innovation Project 1 – Aeolian vibration monitoring and prediction

3.1 Project description, purpose and assessment of costs/benefits

Refer to sections 3.1 to 3.4 of our June 2024 application (link in footnote 1 above).

3.2 FY25 project delivery

The trial for FY24 had a cost of $156,000 and involved procurement of 10 monitoring units (both aeolian vibration and weather devices), installation, software/platform development and support. The 10 trial units were located based on parameters that make the occurrence of aeolian vibration probable.

In FY25, the project involved:

- completing a six month trial period with the installed devices over the winter period (conditions most susceptible to aeolian vibration);
- purchase and installation of 2 additional weather stations; and
- purchase of 2 spare aeolian vibration sensors.

The ongoing management of the trials and analysis of the trial results has provided insights into the benefits and application of this technology, considerations for system integration, and considerations for the future expansion of the trial. The results to date are encouraging.

The FY25 trial found at least 4 of the 10 of the sites selected did experience aeolian vibration, while the others did not. Sites confirmed to experience aeolian vibration, will be subject to conductor samples fatigue testing shortly (in FY26). This is a secondary test of the data from the trial and informs the use of the data for conductor life cycle predictions. In addition, we will install vibration dampers at the confirmed sites to test if that mitigates the predicted impact.

The results of impacted trial sites will inform our understanding of sites where aeolian vibration prediction will be of most value. The site selection criteria, as described in our June 2024 application (link in footnote 1 above), remain valid. Once we collect more trial data, including from additional sites, further modelling will be completed to inform site selection assumptions.

The trials and analysis through FY25 confirm the anticipated benefit for aeolian vibration prediction. Based on this, we are now looking at options for additional devices and further trials for conductor aging.

Further trials are considered necessary to test a range of network scenarios, given the breadth of the Powerco network and varying climatic conditions. We are planning to install 10 additional devices at new sites and also move some of the existing devices where the initial trial has demonstrated aeolian vibration is not impacting the conductors. This may progress in FY26, dependant on timing of internal approval and the need for trials to be focused across a colder weather period. A decision on a fuller integration of devices into the fleet asset management system will be made following further trials and analysis in FY26.

A report on the initial trial, conductor testing and analysis of results, as per by Schedule 5.3 (5), will be completed in late 2025. The project results and learnings will be more meaningful following completion of the conductor testing (an FY26 activity) when we can analyse and share both the trial and testing results. While further network trials are planned in FY26, the point of project 'completion' for the purposes of Schedule 5.3 (5)

is determined to be following conductor testing, when we will report on the project results to that point and share learnings with the sector.

A summary of the project phases and costs across FY24 and FY25 is provided in Table 2.

Table 2 Project activities and costs – Aeolian vibration monitoring and prediction

	FY24 incurred	FY25 incurred
Key activities	• Procure, install and commission 10 Sentrisense vibration monitoring devices • Procure, install and commission 10 Sentrisense weather station devices	• Procure and install additional 2 weather stations • Procure 2 spare vibration devices • Complete 6 month monitoring trial of aeolian vibration over the winter period • Review and analysis of trial results • Assess options for additional testing to confirm results • Assess case for continued / expanded trial
Capex	Monitoring devices and installation $49,943 Weather devices and installation $77,365 Trial management and system integration $14,000	Device procurement and installation for ongoing trial **$22,286**
Opex	Software annual licensing Monitoring $6,748 Weather $7,635	Sentrisense annual software subscription **$19,288** Connectivity fee **$16,037** Powerco project management and system integration **$6,717**
Total cost incurred	$155,691	**$64,328**
Application drawdown	$77,846	**$32,164**

4. Innovation Project 2 – Satellite intelligent vegetation management

4.1 Project description, purpose and assessment of costs/benefits

Refer to sections 5.1 to 5.4 of our June 2024 application (link in footnote 1 above).

4.2 FY25 project delivery

The project has progressed in FY25 as anticipated in our June 2024 application (link in footnote 1 above).

Following the field trial across a range of feeders on the Powerco network (subject of the FY24 drawdown), in FY25 AI Dash provided a set of initial results, and completed a cost/benefit/impact analysis. Based on this AI Dash analysis, and further Powerco assessment of costs/benefits/options, the Powerco Board decided to progress with the project. This stage involved significant analysis to determine the costs and benefits of proceeding. Based on the initial field trial and the subsequent analysis, we are now confident that the technology can provide significant efficiencies and benefits for consumers.

In FY25 we purchased a first capture of the entire network (capex), worked through all set up requirements for the system and commenced set up components. We reviewed all operational practices ready to adjust practices in FY26 to support the strategic shift across the network. The cost in FY25 for set up and data acquisition was US$1,000,000 (capex), being NZ$1,689,900 at the time the cost was incurred. System set up and integration has been relatively complex, but all issues were worked through in FY25 and set up has now been completed ready for full implementation.

Powerco has now committed to implementing the project for five years starting in FY26. This will involve annual data captures for those five years. These future years for the project will involve ongoing activities and costs for system integration, adjusting operational processes, training and support. In FY26 we will also configure an additional module for storm response. Other modules may be considered over the subsequent 5 years. A full review will be completed after 5 years of operation.

A report on the project, as per by Schedule 5.3 (5), will be completed during 2025 on the project, trials and analysis of results to date. The report is anticipated to be available by August 2025 following completion of systems/ process integration and data analysis which is currently underway. While Powerco now plans to rollout the technology starting in FY26, the point of project 'completion' for the purposes of Schedule 5.3 (5) is determined to be following the full system integration and data analysis, when we will be in a position to provide a robust report on the project results and share these with the sector.

A summary of the project phases and costs across FY24 and FY25 is provided in Table 3.

Table 3 Project activities and costs – Satellite based intelligent vegetation management

	FY24 incurred	FY25 incurred
Key activities	• AI Dash commission: Data acquisition, create GIS layers, setup model, test model /reconfigure model, run field pilot.	• Review pilot, analyse results, assess RoI, complete cost/benefit analysis • Board decision to proceed • Acquire data capture of entire network • Work through set up components ready for implementation
Capex	-	**$1,689,900**
Opex	$150,000	
Total cost incurred	$150,000	**$1,689,900**
Application drawdown	$75,000	**$375,906** being the remaining allowance after drawdown for project 1

5. Preparing this application for innovation project allowance

5.1 Addressing the Schedule 5.3 criteria

In Appendix 1, we have outlined the criteria for the innovation allowance in Schedule 5.3. The table summarises how each criterion is met, and/or where in this application the relevant information can be found. We are satisfied that all the criteria have been addressed.

5.2 Specialist review and report

Our June 2024 application (link in footnote 1 above) includes the verification report from a suitable specialist (Edison) that the projects:

- Are innovation projects
- Have a purpose of delivering electricity lines services at a lower cost to consumers and at a higher quality of supply to consumers
- Have benefits and learnings that will be of general application to other EDBs.

5.3 Liaison with the Commission

In February 2024, Powerco met with Commission officials in the electricity distribution team to discuss the three projects being scoped for an FY24 application, key learnings from other applications, expectations in our application (including level of detail), approach to the specialist adviser, and approach to projects with phases over multiple financial years. We had subsequent follow up with the Commission in preparing the FY24 application on matters of clarification. As outlined in section 2.2, this application is a continuation from the FY24 application. Powerco was also active in the Commission's DPP4 work programme in developing approach to innovation under the DPP4.

5.4 Reporting on completed projects and sharing learnings with other EDBs

The Commission has emphasised the focus of the innovation allowance to encourage projects that will benefit NZ Inc, and reporting on the projects and sharing learnings with other EDBs is an important part of the process. Should this application be successful, Powerco anticipates the following activities to share learnings:

- Prepare report as required by Schedule 5.3 (5). The report for the two projects subject to this application will be completed during 2025 at a suitable point that these projects can be deemed as 'completed' to a stage suitable for sharing findings, as described in section 3.1 and 4.1 above. The report will be made available on our website
- The project for the lines down detection project will be held until a decision is made on progressing that project.
- Share updates on our application, key findings and related reports on our website and social media channels
- Present an overview of the projects and key learnings to a suitable ENA or EEA forum to raise awareness amongst all EDBs. Most likely to be an ENA Future Networks Forum meeting in the second half of 2025, following the release of the reports.

6. Conclusion

Powerco has an active strategy to ready ourselves for the changes in the energy sector ahead. An underlying direction for our Strategy is to drive innovation, with Powerco taking an active role in identifying and testing innovative new technology. This new technology will not only be an integral part of operating our future network, but it will also provide longer-term outcomes for our customers through improved quality and cost in energy services.

In our focus on connecting communities and best outcomes for customers, being innovative as illustrated in the two projects in this application, demonstrates Ngā Tikanga – Our Way.

Figure 2 Powerco Ngā Tikanga – Our Way

Appendix 1 – DPP3 Determination 2020[7] Check of application against Schedule 5.3 innovation project criteria

Table 4 Innovation project allowance criteria and how the requirement is met

Schedule 5.3 requirement	How the requirement is met
5.3(1) In order to draw down an amount from its innovation project allowance, a non-exempt EDB must:	
(a) no later than 50 working days following the end of an assessment period submit an application to the Commission, which includes a description of:	50 working days following 31 March is 13 June 2025. Application submitted in May 2025, ahead of this June deadline.
(i) the innovation project in respect of which that non-exempt EDB has incurred costs and for which it proposes to apply amounts drawn down from the innovation project allowance;	Description: see sections 3.1 and 5.1 of 2024 application[8]
(ii) details of the costs incurred by the non-exempt EDB in undertaking that innovation project (being costs that have not previously been the subject of applications for drawdown amounts from the innovation project allowance) and the proportions of those costs that were opex or capex; and	Costs: see sections 3.2 and 4.2 of this application. A breakdown is provided of costs previously drawn down and costs subject to this application
(iii) that innovation project's purpose, including the steps that the non-exempt EDB has taken or intends to take in order to achieve that purpose;	Purpose: see sections 3.1 and 5.1 of 2024 application (refer footnote 8 for link)
(b) make the application specified in sub-paragraph (1)(a) of Schedule 5.3 publicly available on its website at the same time as it submits it to the Commission; and	Available on our website electricity disclosures page (2025 disclosures): Electricity disclosures (powerco.co.nz)
(c) obtain approval from the Commission in accordance with paragraph (2) of Schedule 5.3.	Awaiting approval
5.3 (2) The Commission may by notice in writing to the non-exempt EDB approve an application by that non-exempt EDB to draw down an amount from its innovation project allowance if that non-exempt EDB satisfies the Commission that—	
(a) the sum of the amount of the proposed drawdown amount for the innovation project and amounts already approved by the Commission for draw down from the innovation project allowance by that non-exempt EDB does not exceed that non-exempt EDB's innovation project allowance for the DPP regulatory period in Table 5.1 of Schedule 5.3; and	The proposed drawdown is $408,070. Along with previously approved drawdown, this is (but does not exceed) the full Powerco drawdown available of $650,000
(b) that non-exempt EDB has already incurred an amount of costs on the innovation project that is at least equivalent to 200% of the proposed drawdown amount (provided such costs have not already been used in a previous application to justify a drawdown amount from the innovation project allowance); and	Application relates to $408,070 Project costs for FY25 are in excess of $1,800,000

[7] As updated including for Powerco's transition in 2022, and the Commission's update to clause 5.3(2)(c) in 2023. 5B20225D-NZCC-25-PowercoE28099s-transition-to-the-2020-2025-DPP-Final-determination-30-November-2022.pdf (comcom.govt.nz)

[8] Powerco FY24 innovation allowance application available here Powerco FY24 innovation allowance application

Schedule 5.3 requirement	How the requirement is met
(c) the non-exempt EDB received a signed report from an engineer or suitable specialist, where the engineer or suitable specialist stated in their opinion that--	Refer Edison report attached to June 2024 application (refer footnote 8 for link)
(i) the proposed project is an innovation project;	Refer Edison report attached to June 2024 application (refer footnote 8 for link)
(ii) the purpose of the innovation project is either: A. delivering electricity lines services at a lower cost to consumers; or B. delivering electricity line services at a higher quality of supply to consumers; or C. delivering electricity lines services at a lower cost to consumers and at a higher quality of supply to consumers; and	Refer Edison report attached to June 2024 application (available on Powerco website, refer footnote 8 for link)
(iii) the benefits of the innovation project will be of general application to the activities of that non-exempt EDB or of other EDBs; and	Refer Edison report attached to June 2024 application (refer footnote 8 for link)
(d) if the non-exempt EDB has elected to use a suitable specialist to procure a signed report in terms of paragraph (2)(c) of Schedule 5.3, the suitable specialist has sufficient expertise in a field relevant to the project, which must be evidenced by the non-exempt EDB providing a copy of the suitable specialist's curriculum vitae to the Commission together with the application to draw down from its innovation project allowance.	Refer Edison report attached to June 2024 application (refer footnote 8 for link)
5.3(3) The Innovation project allowance for the DPP regulatory period: Powerco Limited $650,000	The application will enable the full allowance to be drawn down
5.3(4) When the Commission issues an approval for a drawdown amount for an innovation project from the innovation project allowance for a non-exempt EDB in accordance with paragraph (2) of Schedule 5.3, it must state in its approval the proportion of opex and capex in that drawdown amount, which should be equivalent to the proportion of opex and capex in the costs incurred by that non-exempt EDB for the innovation project and included in its application under paragraph (1) of Schedule 5.3.	Costs incurred in capex and opex: see sections 3.2 and 4.2 Drawdown amount $408,070 Capex proportion 99% Opex proportion 1%
5.3(5) Where the Commission has approved a drawdown amount for an innovation project from the innovation project allowance for a non-exempt EDB in accordance with paragraph (2) of Schedule 5.3, that non-exempt EDB must within 50 working days of completing that innovation project: (a) submit a report to the Commission that outlines the key findings of that project; and (b) make the report in sub-paragraph (5)(a) of Schedule 5.3 publicly available on that non-exempt EDB's website at the same time as it submits the report to the Commission.	Reports will be prepared as follows: Project 1 aeolian vibration monitoring – following completion of the conductor testing and analysis of trial and testing results – anticipate reporting in late 2025. Project 2 satellite vegetation management: following completion of the data capture, systems/process integration, data analysis, and commencement of operation – anticipate reporting in July-August 2025.


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