Resilience Fund Application Form

This form provides the minimum information for the application. A detailed project plan should be developed to inform this application and may be attached.

Project title	A Pilot Federated Electricity Power Outage Map
Date of application	30/1/2025
Details on application	
Applicant [CDEM Group must endorse/sponsor all applications]	Digital Built Aotearoa Foundation (DBAF, <u>https://www.digitalbuiltaotearoa.org.nz/</u>)
Sponsoring CDEM Group	Canterbury CDEM Group
Other local authorities, Groups or organisations supporting this proposal	We have received general support from current stakeholders of the NZ Underground Asset Register. DBAF has also undertaken positive scoping exercises with utilities including Orion in the Canterbury region.

Project description

Executive summary [200 words maximum]

This project proposes the build of a pilot system that will display on a map the electrical power outages from Electricity Distribution Businesses (EDBs) across multiple jurisdictions. The aim of this project will be to demonstrate or prove the viability of four concepts:

- 1. It is possible to take existing electricity outage data, made available by different EDBs, and combine this into a single online map.
- 2. Combining and standardising the outage data from EDBs into a single data format within the online map this is known as data federation.
- 3. Presenting this federated outage data in real-time with no (or minimal) latency between the source outage data from the EDBs and the federated data published to the online map.
- 4. Presenting the resultant federated electricity outage data as a data service for consumption by other organisations and applications.

Data federation is the key point of innovation in this pilot project and will facilitate national standardisation and universal availability of electricity outages across NZ. The project will build on DBAF technology and specifically the NZ Underground Asset Register.

Challenge/opportunity [200 words maximum]

New Zealand frequently experiences electricity disruptions caused by planned maintenance, infrastructure failures, and natural disasters such as storms and earthquakes. These outages significantly impact public safety, economic activity, and community well-being.

Currently, there is no unified national or regional view of power outages. Electricity distribution businesses (EDBs) maintain siloed data with limited sharing, which hinders planning and coordination during normal operations and delays response times during emergencies.

This pilot project seeks to address these challenges by building on the NZ Underground Asset Register (NZUAR), a platform well-suited to become a central repository for Aotearoa's utility and lifeline data. The project will create an integrated outage map, providing enhanced visibility, communication, resource allocation, and decision-making to reduce community disruption.

In collaboration with the Canterbury CDEM Group, this initiative aims to bridge resilience and response. A unified map serving everyday operations ensures the sector is familiar with the system during emergencies. This approach lays the foundation for improved response and recovery, enabling sector-wide innovation and collaboration across jurisdictions.

The pilot project will also provide EDBs with tailored recommendations to enhance their data structure and systems, fostering better integration and enabling more effective planning, coordination, and response across the sector.

Alignment with priorities and objectives of the National Disaster Resilience Strategy (NDRS) [200 words maximum]

This proposal aligns with all three main priorities of the NDRS, more specifically – objectives 1, 3, 5, 7, 8, 9, 12, 15, 16, 17. Implementing a regionally consistent approach to publishing power outage information, consolidating asset and contextual information in one place, and utilising the NZUAR as a business-as-usual tool to encourage data-sharing and collaboration ensures that data, information, and behaviours are already in place and hardwired when emergencies occur. A major learning from the Canterbury earthquake recovery was the importance of sharing asset data and knowledge, and the NZUAR seeks to address this. Having a centralised source for all this information enables better strategic planning. It helps reduce the impact of outages on communities and improves assessment of risk and access to critical information. In the aftermath of a disaster, this means all the necessary information is easily accessible in one place to enable a swift response. We propose that the three most relevant objectives met by this pilot project are 12 (improved information), 15 (whole of region approach to resilience) and 17 (embed a strategic, resilience approach to recovery planning).

Alignment with Principles and Allocation Preferences [200 words maximum]

This pilot project aligns with the principles as follows:

- Supports the National Disaster Resilience Strategy (NDRS) by enhancing resilience through improved outage data visibility and emergency response capabilities.
- Endorsed by the Canterbury CDEM Group, ensuring alignment with local priorities and sponsorship requirements.
- Offers regional focus by piloting within Canterbury while demonstrating scalable benefits for potential national application.
- Engages NEMA through transparent collaboration, with opportunities for involvement in design and implementation.

 Incorporates the role of Māori by fostering inclusivity and enabling equitable access to vital infrastructure information, supporting culturally responsive emergency management practices.

This pilot project aligns with the allocation preferences as follows:

- Directly supports the National Disaster Resilience Strategy (NDRS) by improving resilience through better outage data integration and visibility.
- Promotes equitable outcomes for Māori communities by enhancing access to critical infrastructure information, supporting culturally responsive decision-making.
- Focuses on outcomes by delivering a pilot that materially improves outage response and coordination.
- Demonstrates scalability and applicability across other regions and CDEM Groups.
- Contributes to national consistency by standardising electricity outage data.
- Builds on existing platforms like the NZ Underground Asset Register, maximising prior investments.
- Primarily involves operational expenditure, aligning with funding preferences.

Application of outcomes/benefits to sector [200 words maximum]

- Leverages Existing Platforms: Builds on the NZ Underground Asset Register and DBAF technology, maximising the value of existing systems and sector engagement while introducing new capabilities
- **Unified Outage View**: Establishes a centralised, real-time map of electricity outages across multiple jurisdictions, enhancing situational awareness.
- **Data Federation:** Combines disparate outage data from various Electricity Distribution Businesses (EDBs) into a standardised, federated format for universal access.
- **Improved Data Quality:** Provides EDBs with recommendations to enhance their data and systems, supporting better integration and accuracy.
- Enhanced Emergency Response: Reduces response times and improves coordination during emergencies by providing a shared, real-time resource for decision-making and prioritisation.
- **Support for Resilience:** Bridges the gap between everyday operations and emergency response, ensuring the sector is familiar with the system before a crisis occurs.
- **National Standardisation:** Promotes the standardisation of electricity outage data, enabling consistent practices and interoperability across NZ.
- **Foundation for Innovation:** Lays the groundwork for developing additional tools and processes that leverage federated data, driving sector-wide innovation.
- **Cross-Sector Accessibility:** Offers a data service that can be consumed by other organisations and applications, extending the utility of the system beyond EDBs.
- **Minimised Community Disruption:** Enhances resource allocation and communication, reducing the impact of outages on community well-being.

Ongoing costs (post-project) and how it will be funded [200 words maximum]

There is sustainable business model that underpins all the technology built by DBAF. A key principle for DBAF technology is that it should provide enduring value for everyday operations (peacetime) and in doing so attract subscription income from the sector. These subscriptions provide for the ongoing operation, maintenance and development of the technology. DBAF has a proven track record of the success of this funding model – for both NZUAR and the National Forward Works Viewer. Both technologies have attracted public sector investment to develop specific functionality – which is then maintained using reoccurring subscription income from sector subscribers. This pilot project will add to this Public Good pool of investment which is held in trust by DBAF under a charitable, purpose-focused, model.

Once developed, the federated outage map (and data service) will be funded by DBAF using subscription income from NZUAR and NFWV. Evidence of this subscription income can be provided on request.

Project design			
Project manager	Angus Bargh		
Other project members	Alistair McIntyre (technology & data architecture), Lois Li (software development), Anthony Randall (business analysis, spatial), Liz Cookson (UX/UI) Naomi Ambrose (product management), Emily Fearnley (communications & engagement, research), Cameron Stanley (data, process, analytics)		
External providers/contractors	Jacobs NZ (ETL (data) services))	
NEMA resource (if needed)	Representation from Infrastructure Resilience, Planning & Sector Partnerships		
Deliverables [Note: payments will be made after successful completion of milestones identified]			
Key milestones	Date for completion	Cost (invoice amount)	
Key milestones Research existing electricity outage data sources nationally, Present summary report	Date for completion Within 3 weeks of project approval	Cost (invoice amount) \$6,400	
Key milestonesResearch existing electricity outage data sources nationally, Present summary reportDesign and scoping workshop with Canterbury CDEM, NEMA and EDB reps	Date for completionWithin 3 weeks of project approvalWithin 4 weeks of project approval	Cost (invoice amount) \$6,400 \$1,500	
Key milestonesResearch existing electricity outage data sources nationally, Present summary reportDesign and scoping workshop with Canterbury CDEM, NEMA and EDB repsWireframe of adapted design, front-end layout and user workflow	Date for completionWithin 3 weeks of project approvalWithin 4 weeks of project approvalWithin 6 weeks of project approval	Cost (invoice amount) \$6,400 \$1,500 \$7,040	

Validate proposed design with CDEM sponsor groups (and NEMA rep)	Within 10 weeks of project approval	\$0
Build dataflow architecture for federation of outage data	Within 14 weeks of project approval	\$15,840
Complete software development of user stories to build federated outage map	Within 18 weeks of project approval	\$47,520
Demonstrate real-time federation of 5-10 EDB outage datasets	Within 20 weeks of project approval	\$10,080
Complete user testing and deploy (pilot go-live for third party review)	Within 22 weeks of project approval	\$8,960
Complete development of APIs provide unified electricity outage data service	Within 24 weeks of project approval	\$7,920
Project summary report including sector recommendations	Within 28 weeks of project approval	\$4,480
Sign off from NEMA and sponsoring CDEM groups that	Within 28 weeks of project approval	\$0
project objectives have been met		
project objectives have been met	Total:	\$117,740
project objectives have been met Identified risks	Total:	\$117,740
project objectives have been met Identified risks Risks	Total: Suggested mitigation / manag	\$117,740 ement
project objectives have been met Identified risks Risks Design of data model and user interface is more complex than anticipated	Total: Suggested mitigation / manag DBAF to workshop with existing experience from previous develo data model and data concepts. F viable pilot product and then imp	\$117,740 ement stakeholders. Re-apply opment work to streamline Focus on producing minimal prove through iteration
project objectives have been met Identified risks Risks Design of data model and user interface is more complex than anticipated Poor alignment between stakeholders of success criteria for the pilot project (different stakeholders have different expectations)	Total: Suggested mitigation / manag DBAF to workshop with existing experience from previous develo data model and data concepts. F viable pilot product and then imp DBAF to ensure there is early ar with stakeholders (CDEM Cante ensure there is high awareness progress and outcomes	\$117,740 ement stakeholders. Re-apply opment work to streamline Focus on producing minimal prove through iteration and continuous engagement rbury, NEMA, EDBs) to of scope, success criteria,

Organisations are hesitant to share outage data	Research already undertaken by DBAF shows there are already publicly available electricity outage data from the majority of EDBs. The pilot project will research existing data sources and make recommendations for improvements (which should empower and give confidence to EDBs)			
Existing outage data is too disparate in terms of data schemas, formats and provision / services that true federation is highly complex and potential unviable	This is mitigated in three ways. Firstly, through up-front research to identify any common schemas and data service formats that are currently used by EDBs. Secondly, build the pilot system around the most common approach from EDBs identifying the easiest schemas to federate. Lastly, place a strong focus on data schemas and data service formats in the project recommendations – this project will deliver significant value in simply understanding the current landscape.			
Funding request and use				
CDEM Resilience Fund contribution	\$117,740			
Local authority / organisation contribution	\$0			
Other sources of funding or support	\$41,380 (contribution in-kind from DBAF)			
Budget [please supply spreadsheet]	\$159,120			
Applies if application exceeds \$100,000 over the life of the project	Are you prepared to attend an interview in support of this application (if needed)?	Yes 🛛	No 🗆	
Application confirmation				
Is this application from an individual or other organisation		Yes 🖂	No 🗆	
Does the CDEM Group support this a <i>support</i>]	Does the CDEM Group support this application? [sign off below confirms support]		No 🗆	
Approval of Chief Executive [Chief Executive or Head of the organisation receiving the funding]	Mdan			
	Name: Matthew Thomas			

Approval of CEG Chair

Name: Will Doughty

All communications regarding the application, including approval decisions will be addressed to the Chief Executive and CEG Chair

CDEM Group comment

The Canterbury CDEM Group office is supportive of this project. Recent work by the Canterbury CDEM Group has highlighted the importance of federated data both in readiness and response. We have had success in providing federated road status data across the Canterbury Councils and NZTA. Across the electricity distributers in New Zealand, we see each of them displaying their outage data in different ways. In Canterbury where there are five distribution networks this results in poor clarity on the status of the networks and prioritisation of repair.

There is currently much work across New Zealand at both the National and Regional level to ensure we can create effective Common Operating Picture(s). The work this project will deliver will enhance Common Operating Pictures across New Zealand. It also support meeting recommendation 4.2.2 in the Emergency Management System Improvement Program.

Note: Only complete forms will be considered for assessment. All completed forms and supporting documents must be emailed to NEMA at <u>resilience.fund@nema.govt.nz</u>

NEMA Assessment [internal use only]			
Principles	Yes	No	
Local / regional focus			
Values the role of Māori in the Emergency Management System			
NEMA involvement required			
Allocation Preferences			
Alignment with NDRS			
Achieves equity of outcomes for Māori communities, marae, hapū, iwi and Māori organisations			
Outcome focused			
Applicable in other regions / CDEM Groups			
Supports national consistency			

Wider funding / resource commitment			
Build on existing work			
Operational expenditure (Opex)			
Capital expenditure (Capex)			
Other			
Application from individuals or other organisations endorsed/sponsored CDEM Group	d by		
NEMA Subject Matter Expert Comment	Supported	Not sı	upported □
NEMA Regional Emergency Management Advisor Comment	Supported	Not su	
			upported

NEMA Director Decision Sign-off	Approved	Declined
Director of Civil Defence Emergency Management		

Appendix A Report Template

CDEM Resilience Fund Project Status Report		Date: DD MMMM YY	
Project title			Project number
Project manager	Contact details		
Executive summary of status			
Progress of deliverables			
Milestones	Status (on track, delayed,	etc.) Progress this qu	arter and next steps

Identification of any issues (actual or potential)						
	Issue			Mitigation		
Schedule						
Staff resources						
Budget						
Dependencies						
Stakeholders						
Quality						
Other						
Budget						
Activity	Expenditure to date	Budget to date	Full yea	r budget	Budget forecast	Variance

Comment on variance			
Confirmation			
I confirm the status report is accurately reflected a	nd the invoice amount is correct.		
Project Manager	Chief Executive	CEG Chair	
Comment by Resilience Fund Coordinator			