



New zealand energy storage for resilience

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The Electric Power Optimization Centre (EPOC) has been instrumental in the development of policy for the electricity industry in New Zealand through advice to the Electricity Commission, Electricity Authority and the Climate Change Commission. EPOC has written a number of submissions to the Ministry of Business Innovation and Employment, and the Electricity Authority on different aspects of regulation of the NZEM.

Over the past ten years, much of the software developed in EPOC has been migrated to the programming language Julia and made open source. EPOC has applied SDDP.jl to New Zealand hydroelectric reservoir optimization, through the software package JADE.jl. JADE was adopted in 2022 by the New Zealand Electricity Authority as a tool to monitor market performance and assess New Zealand's security of energy supply.

EPOC was founded in 2002 when it held its first Winter Workshop at the University of Auckland. This meeting is now an annual gathering of modelling experts in the New Zealand electricity industry, to disseminate academic research and share modelling approaches to electricity markets. Talks from the last eleven workshops are available on the EPOC website.

This project developed a novel system-of-systems framework of the complex temporal functionality of distributed infrastructure networks and the dependencies between networks.

A functional model was developed to represent New Zealand infrastructure networks and the interaction between networks. The model uses geospatial packages and network specific simulation packages, with real world data from a range of stakeholder organisations. This real-world basis, and the New Zealand wide model across all networks makes it fairly unique in the broader context of international research in this area, where simplified networks are often used due to a lack of data.

UniServices Business Development Manager, Kate Presswell helps industry, government, and communities build partnerships with our researchers to find new pathways for research to create impact.



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