# Power of Research

## Infrastructure Research Day - Transpower

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# Research Interests

- Improving Reliability
- Building Resilience
- Te Mauri Hiko / Energy Futures
- Automation Tech and Data Consolidation
- Economic Considerations

# Reliability

- Ever tighter regulated performance
- Rising customers expectations
- More with less
- Transmission technology changes (i.e. material science, polymer deg's, SF6)
- Corrosion and erosion
- Lightning and earthing
- Birds and vegetation

# Resilience

- EEA Resilience Working Group & Draft Guide
  - Lifelines and CIMS
  - Resilience evaluation tool
- Staylive Emergency Preparedness Guide
- Informing Changes to design standards
- Applying vulnerabilities and criticalities to investments

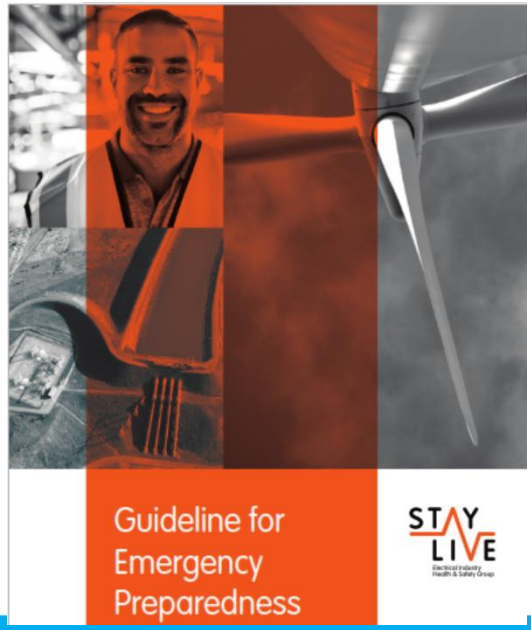
eea Electricity Engineers' Association

**Resilience Guide**

**August 2019 - Draft**

Issued and published by the Electricity Engineers' Association of New Zealand (Inc.) (EEA).

First published *(Enter year)*



# Te Mauri Hiko / Energy Futures

## Implications for Networks

- Updating Demand and Supply Forecasting
  - We need to share scenarios and planning to better understand ‘what if’ changes to inputs
- Transmission and Distribution System implications
  - Understanding localised impacts as well as those across the grid backbone
- Establishing a longer VIEW on Security of Supply
  - Forecasting the dry winter issue beyond the current 10 year window to inform both market and industry and encourage investment and market design solutions
- Establish a future Grid strategy
  - Strategic principles to guide planning, management of uncertainty, asset stranding risks, distribution investment needs
- Determine power system operational implications
  - Power system and market implications of new technology: security and stability, common and localised issues
- Expenditure Decision-Making in an uncertain environment
  - Asset management and investment decision making in an uncertain environment

# Automation Tech and Data Consolidation

- Industry is *Swimming in an Ocean of Data*
- Automation of Data Management
- Scarcity of useful business information
- System and data evolving too fast
- Field digital data collection set to accelerate
- **Integration of AMIS, GIS, BIM, Digital Image and automated asset management**

# Economic Considerations

- Accepted Tools, such as Riskscape & Merit
- Open Source GIS Vulnerability Maps
- Transparent Asset Criticalities
- Educated Regulators and governance
  - Accepting researched Economic Consequences
  - Expecting all the above as justifications Informing Investments

# Need more Info

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Check out our public portal info

https://www.transpower.co.nz/resources