

# EEA ASSET MANAGEMENT FORUM

## RESILIENCE PLANNING THEORY AND PRACTICE

Back-Up Supply During Ex-Tropical Cyclone Fehi

Rodger Griffiths - Westpower



# Distributed Infrastructure Toolbox: NSC-RNC Project

## Electricity T&D Assessment to Extreme Natural Hazard

Proposed Electricity Resilience Framework for Resilience to Nature's Challenge

Electronet Offices, Greymouth

25<sup>th</sup> January 2017

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ENGINEERING

# Transmission Lines on the West Coast

- Proposed Waitaha Hydro Scheme
- Transpower Substations
- Amethyst Hydro Substation
- 110 kV
- 33 kV
- 66kV






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- Major Fault



# DG BACKUP RESILIENCE CONSIDERATIONS

- Survivability
  - Power and Communications
  - Black Start Capability
  - Protection
  - Isolated Running
  - Re-Synchronising
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted upwards from left to right, located in the bottom right corner of the slide.











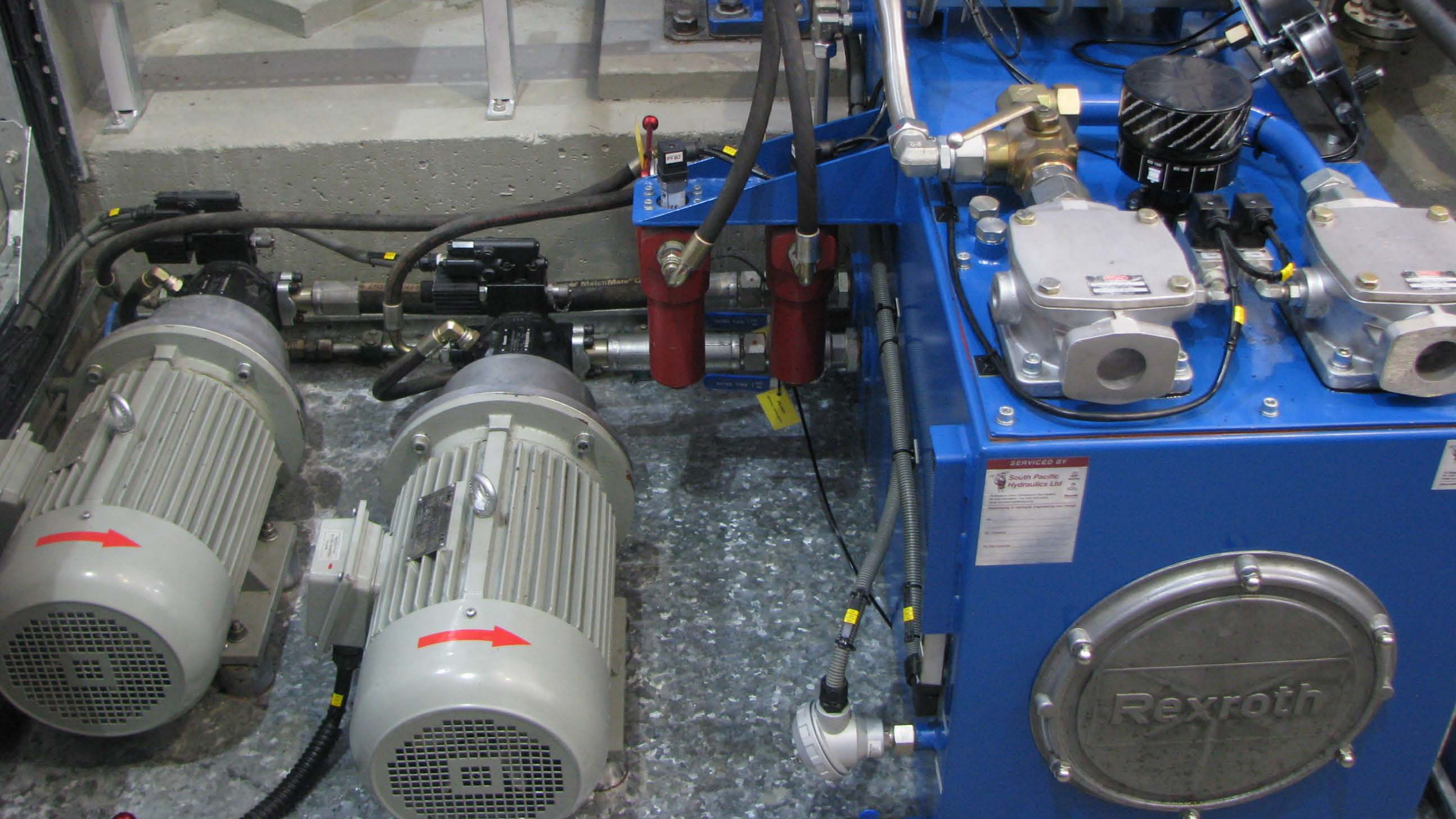
POWER Gen

**DANGER**  
HIGH VOLTAGE  
WARNING

WARNING  
ELECTRIC SHOCK  
Hazard

ETEL

**DANGER**  
HIGH VOLTAGE



SERVICED BY  
South Pacific  
Hydraulics Ltd





s Cornelius Powerhouse



Mt Whitcombe

Mt Lambert



Intake

Tunnel

Penstock

Access Road

Powerhouse and Substation

Outlet

Ameethyst River

Old Ameethyst power scheme intake

Old Ameethyst powerhouse site

6

to Ross, Hokitika

Wanganui River





G  
PAUWELS  
TRAFU

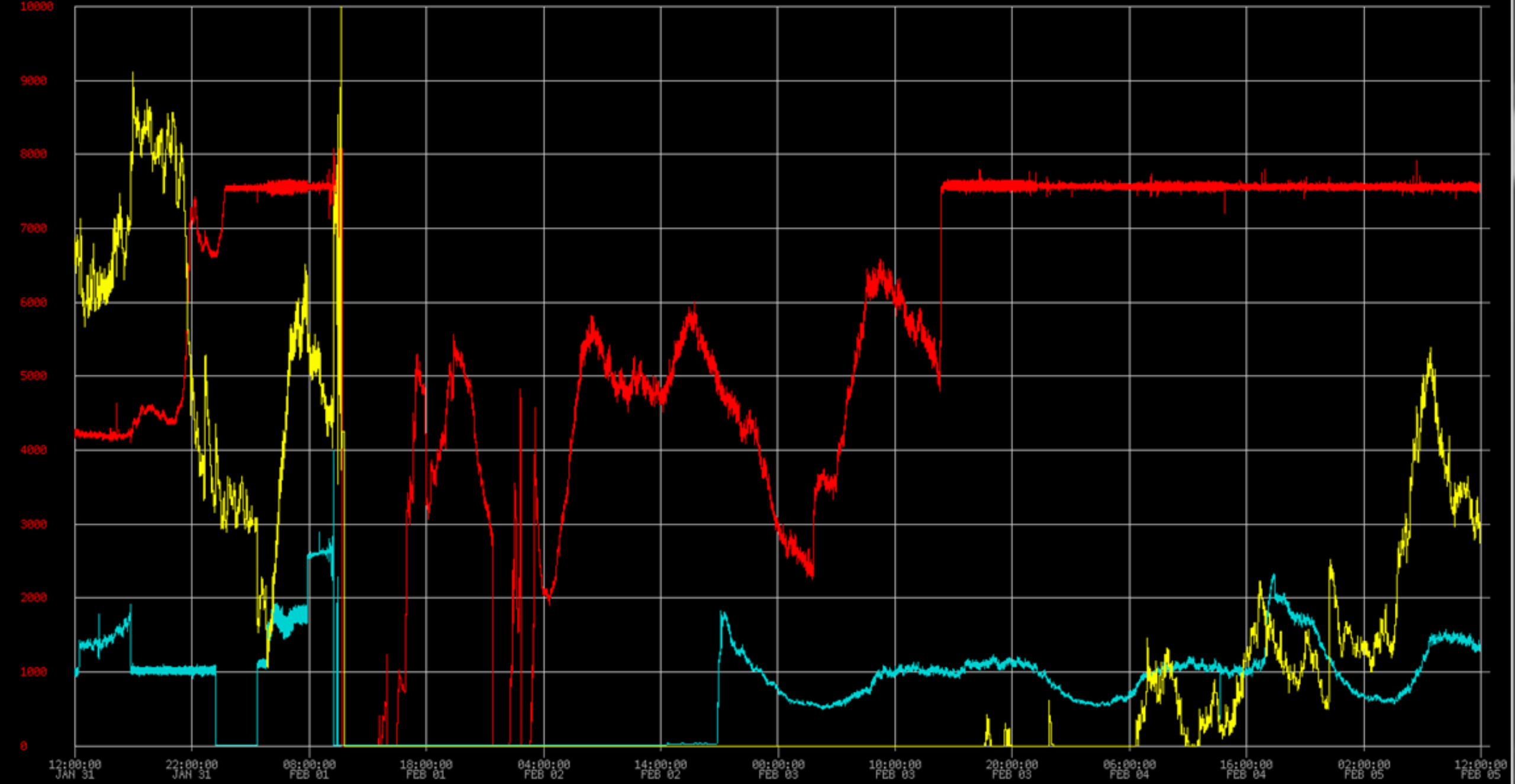
ETL

LS1

T1

KEEP OUT

KEEP OUT

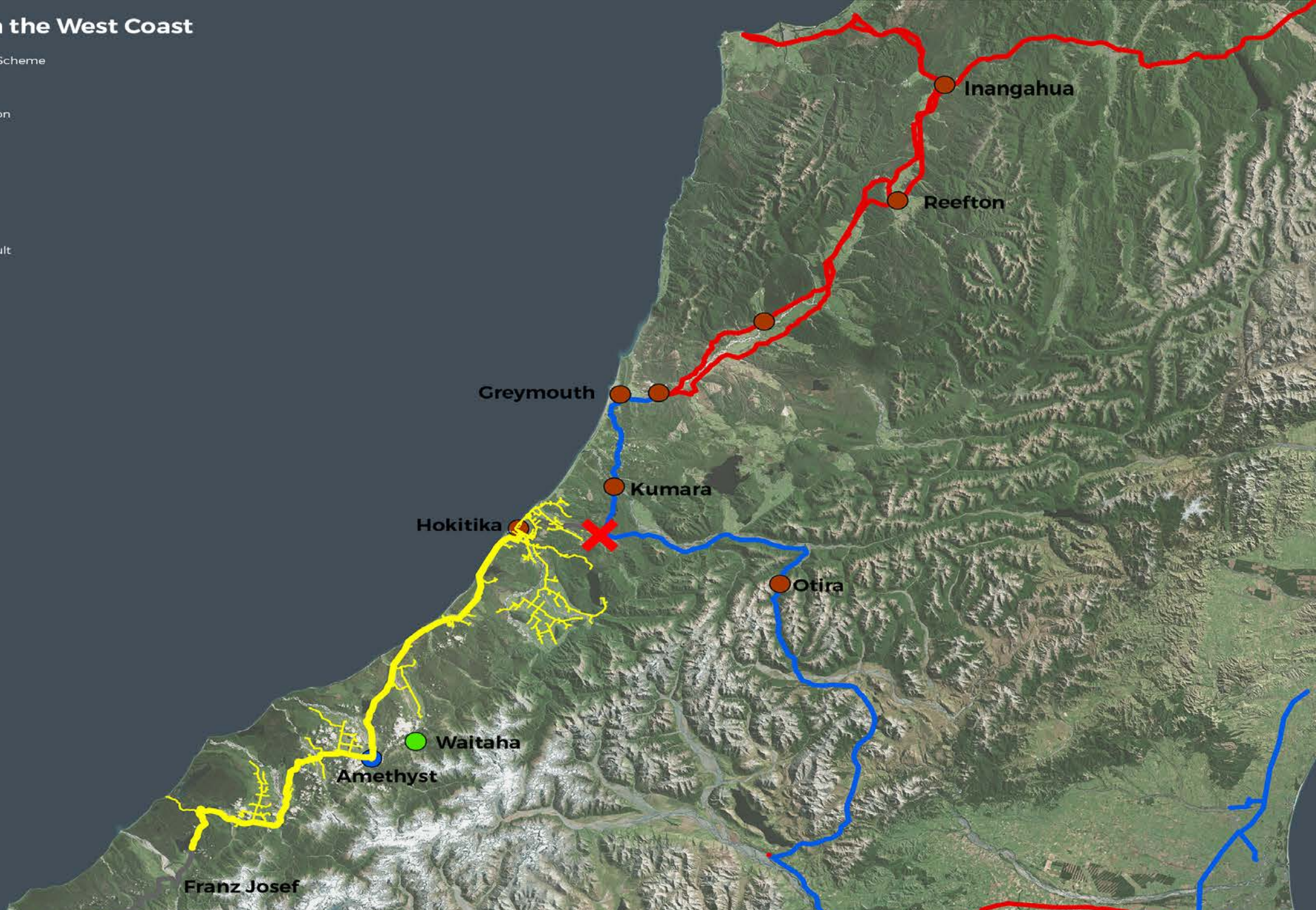


AMS..... Generator MW..... 4432 kW..... RAM  
 MAHAPO..... Gen Watts..... 3 MW..... RAM  
 NETWORK..... GXP\_HK3..... 2 MW..... RAM



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- Energized Line During Fault
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# RESILIENCE PLANNING PAYS OFF

