

### Assessing Micro-grid restoration for Westpower

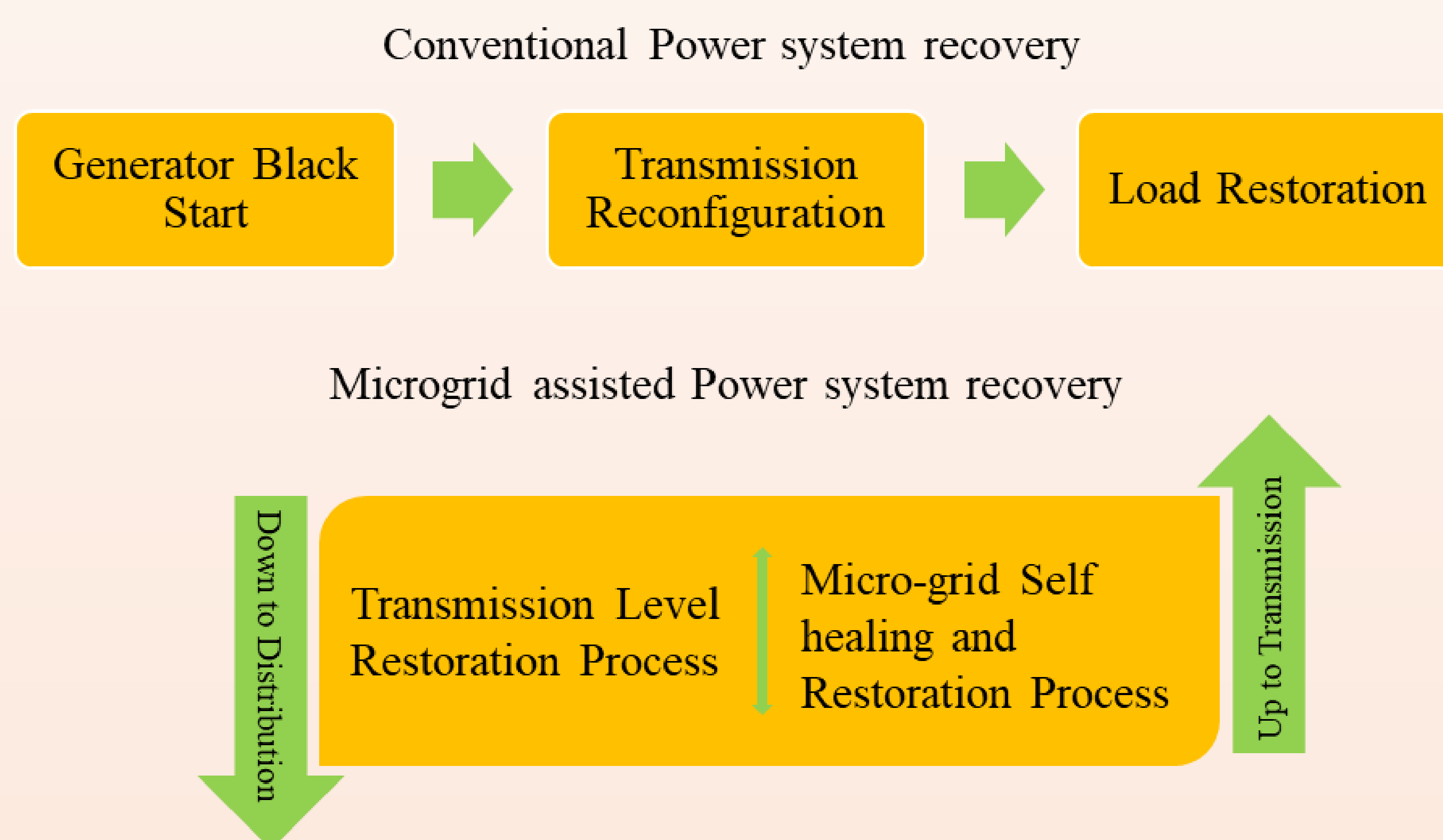


Figure 6. Conceptual illustration of microgrid-aided power system recovery

- Islanding detection, Reconnection
- Generator stability, Control Renewables

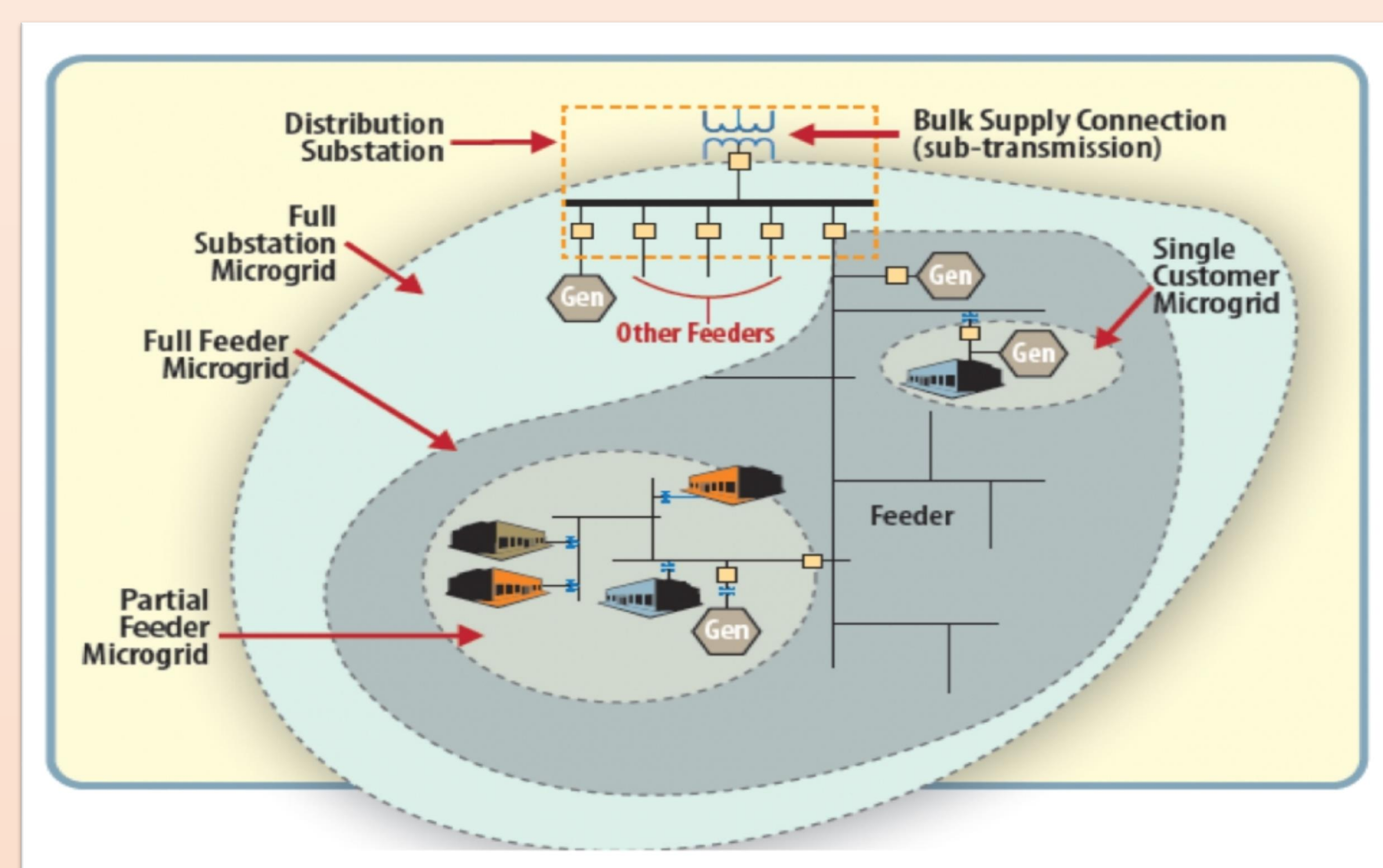


Figure 7. Conceptual illustration of microgrid operation [2]

### Spatially mapping scenarios to Westpower distribution

- Impacts of **four** Alpine Fault (AF) scenarios are mapped to Westpower distribution network.
- Components under study are transformers, cables, poles and isolators operated by Westpower.

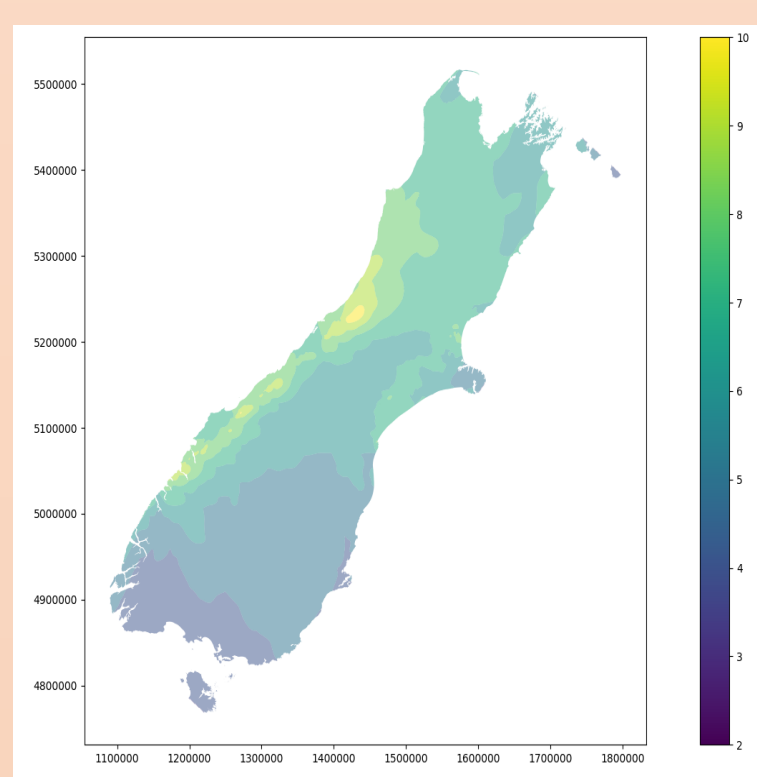


Figure 2. Scenario Alpine Fault 400m Southern Hypocenter

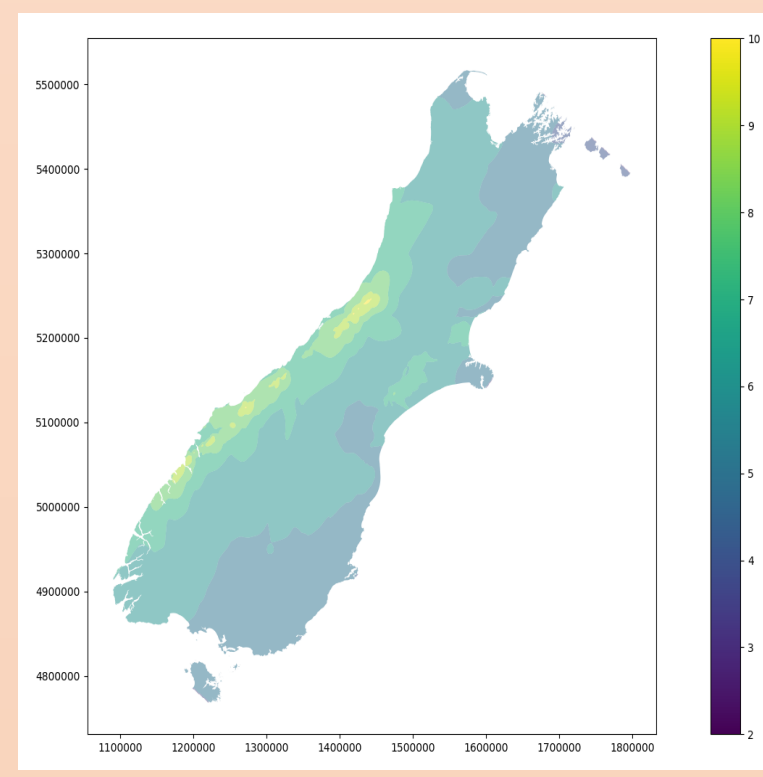


Figure 3. Scenario Alpine Fault 400m Northern Hypocenter

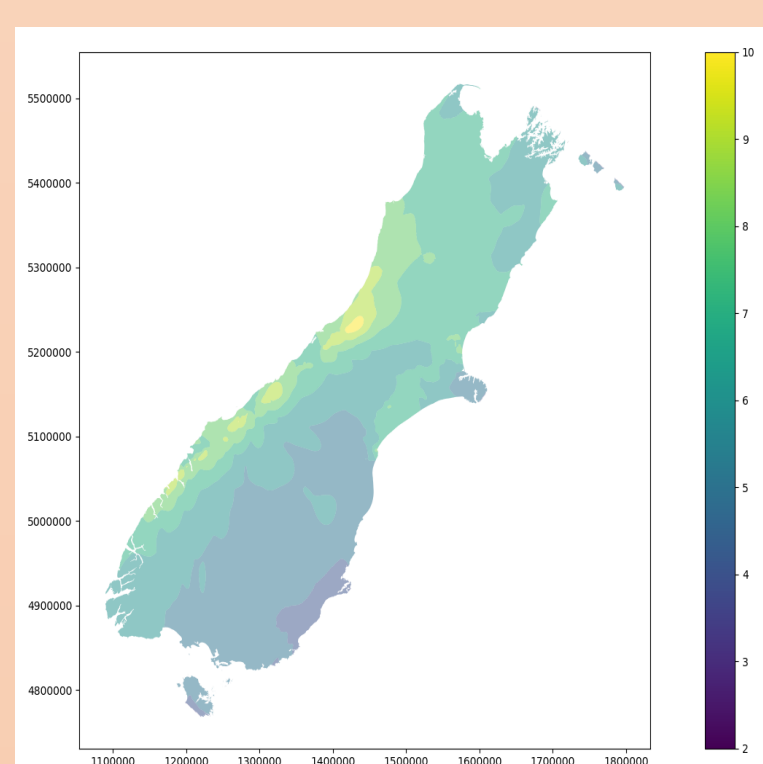


Figure 1. Scenario Alpine Fault 400m Central Hypocenter

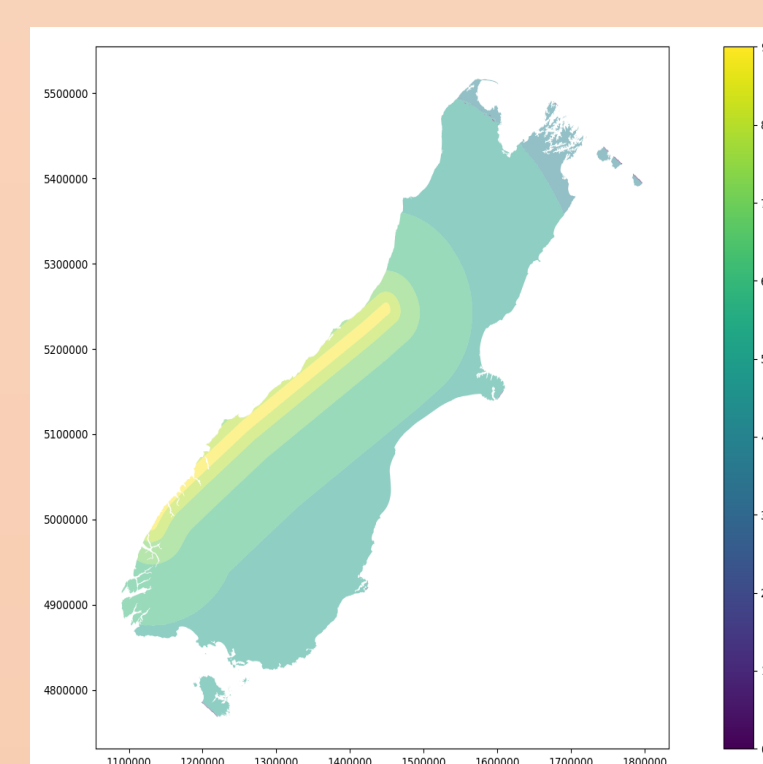


Figure 4. Scenario Alpine Fault 400m Empirical Southern Hypocenter

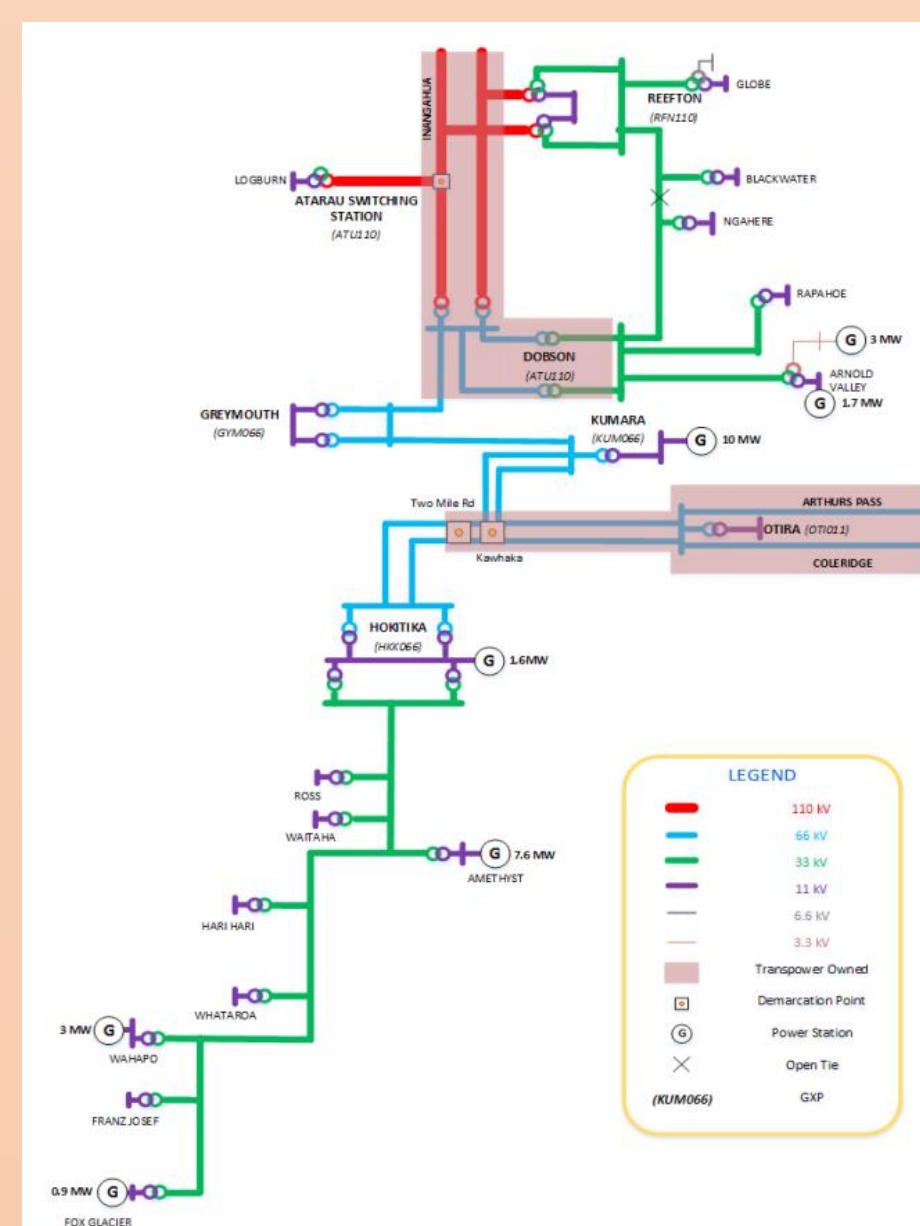


Figure 5. Westpower MV Network [1]

### Communication Assessment during AF for West Coast

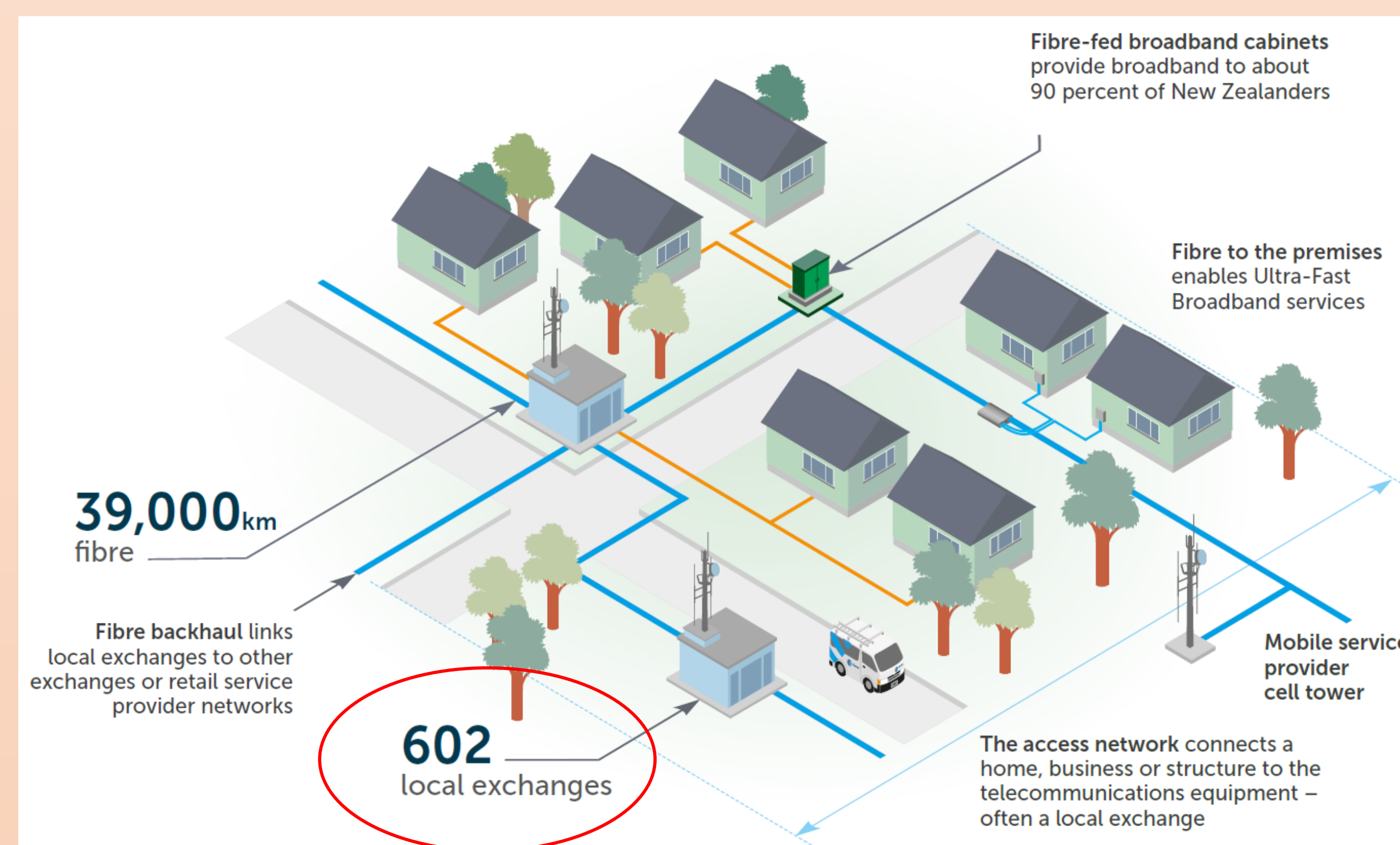


Figure 8. Chorus Network [3]

The brain of the communication network are exchanges or central offices which still work in isolated or local mode in some cases during and after an event. The focus of this project is on this critical components of the overall communication lifelines.

### Policies, Guidelines, & Engagement

- Dissemination of resilience preparedness and energy-communication synergies during major future events
- Conduct facilitated meetings with other utilities to collate a coordinated response from AF case study of Westpower
- Conduct a RNC workshop to transfer the electricity-communication interdependency and resilience learnings following natural hazards to other infrastructure researchers and stakeholders

- **Five** situations with various network strengths are considered resulting in **twenty** scenarios.
- **Nine** out of the **twenty** scenarios are identified as potential feasible islanding topologies.