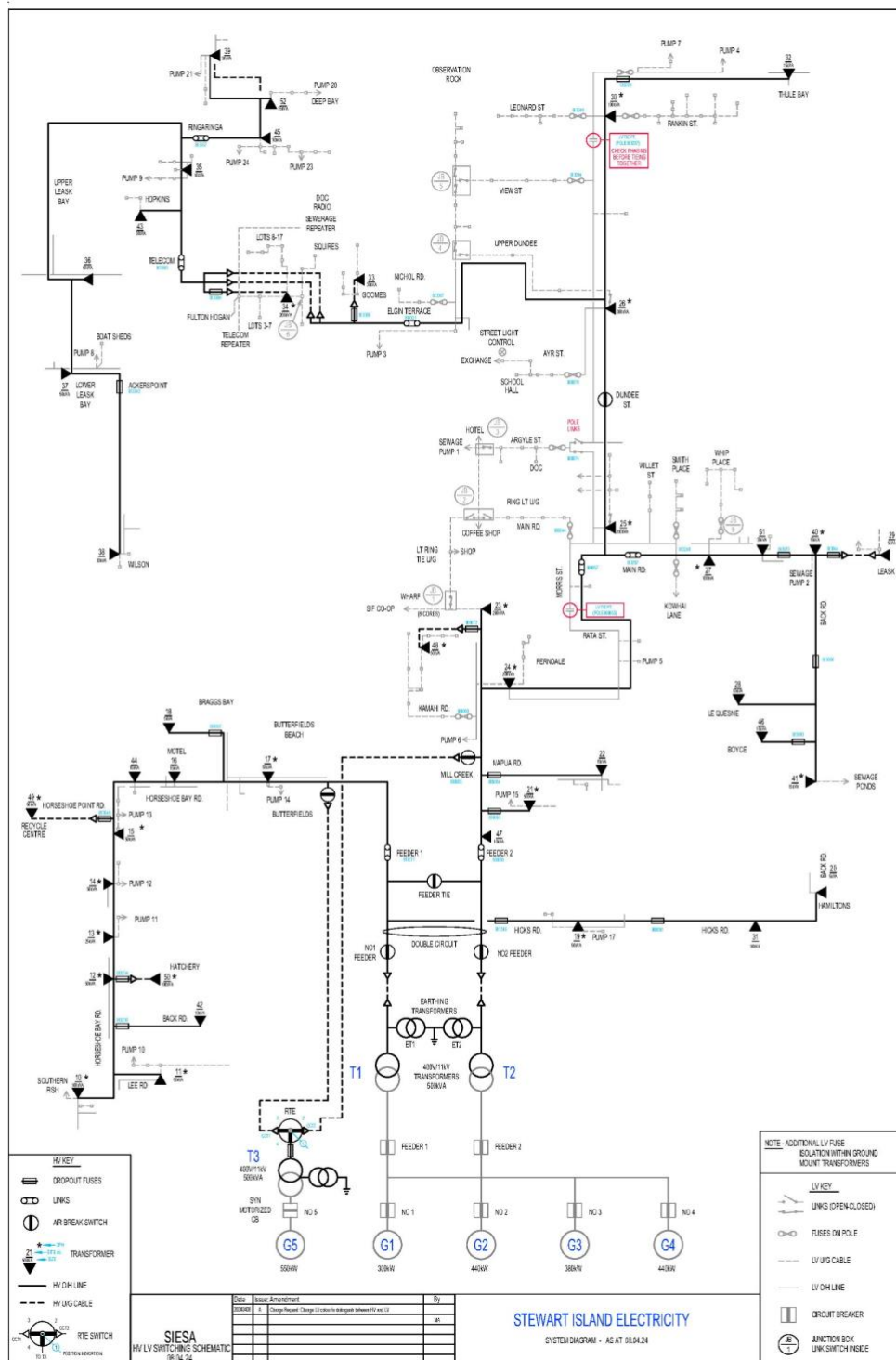# An investigation into low-inertia grid stability with high injection of variable renewable energy sources
Supplementary Material

Reference material

Rakiura Stewart Island single line diagram

Equipment

Station transformer specifications

Power Rating	500 kVA
Phases	3
HV	11KVA
LV	0.415 – 0.24kVA
Vector Group	DYN11
Impedance (Z)	5.0%
Reactance (X)	4.9%
Resistance (R)	1%
No Load Losses	690W
Load Loss	5035W

Pole-mounted transformer specifications

Power Rating	5, 10, 15, 20, 50, 100 kVA
Phases	3
HV	11KVA
LV	0.415 – 0.24kVA
Vector Group	DYN11
No Load Losses	65.6W
No Load Current	1.5%

Line specifications

Brand	Prysman
Type	Dog
AC Resistance (R)	0.391/km
DC Resistance (R)	0.273/km
Inductive Reactance (X_a) to 0.4m	0.276 Ω/km

Base model
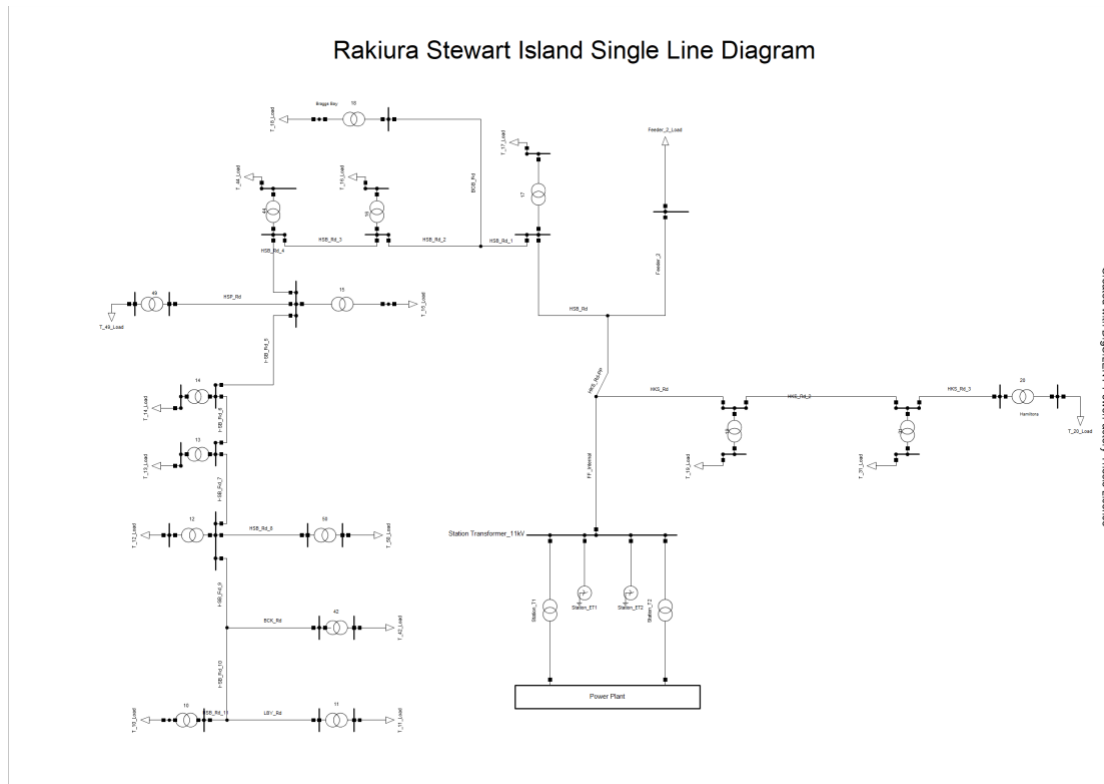
PowerFactory simplified single line diagram of Rakiura Stewart Island

Geographic representation of the model
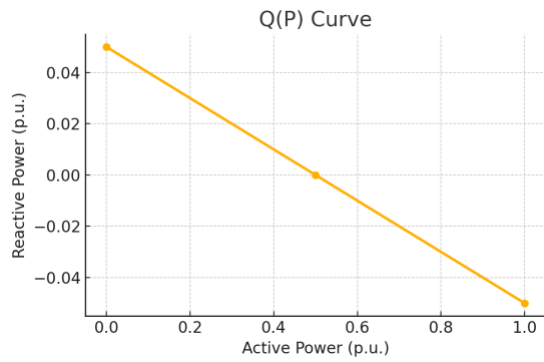
(QP) characteristic setup for generators G1, G3 and G4