BEng Project Mission Statement
Simulation of Loss of Grid Connection to an Embedded Generator

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Background

It is a statutory requirement that embedded generators are shut down if the grid to which they are connected fails. This is essential because if the grid tripped and then was reconnected to the embedded generator, the generator may be forcibly re-synchronised to the grid. Also if work was being carried out on the grid, an isolated generator could result in the lines actually being live even if the original supply from the grid was tripped.

Aims

- To simulate in software the loss of grid to an embedded generator.
- Simulation will be carried out in the environment of the C++ programming language.
- Simulation will allow the changing of
    - Generator characteristics such as inertia and power output.
    - Load setup, i.e. the amount of local load (trapped load) and load imported or exported.
    - Relay characteristics.
- Simulation will use equations to calculate the rate of change of frequency ROCOF (acceleration) from the generator characteristics and the load tripped or switched.
- The simulation will enable the setting of the ROCOF relay to be determined for safe operation of the embedded generator, i.e. if the grid has tripped or load is just being switched, whether or not the loss of grid protection will give adequate response.

Interim Targets.

Experience in C++ will hopefully be gained before the end of this term. Gained knowledge from information sources will enable me to produce by week 10, an interim report, which will clarify my aims for the project and report and let me have the equations and theoretical work derived.

The supervisor and student are satisfied that this project is suitable for performance and assessment in accordance with the guidelines of the course documentation.

Signed

Graham Warnock .....

Dr A R Wallace .....

Date: .....