Methodology Justification

This thesis is aiming to assess the potential deployment of hybrid power generation systems, with smart-grid like energy and distribution control philosophy, as a means of reducing fuel consumption and consequently Green House Gas emissions at off-grid temporary events. The view of the research was to gain sufficient understanding of problem factors, which can hinder achievement of the above aim, such as:

• Assessing the state of technological readiness, is a consideration of available technologies and solutions, that can be applied in order to achieve necessary results. Furthermore, it is a review of developing solutions which may produce more sufficient results than is currently possible with todays technological limitations.

• Power generation, transmission and distribution are the three key steps of electrification of any electrical grid system. Understanding the principles behind set processes provide the relevant knowledge for assessment of capabilities and limitations.

• Power quality is of great importance to any electrification based research. Understanding the role of Power Factor issues and how they effect generation capacity, is a fundamental step towards potential problem solving.

The following is a series of logical steps which can be repeated for the purposes of validation of the thesis and further research into the field of off-grid electrification.