

SAFETY ANALYSIS OF A MICROGRID

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ABSTRACT

MicroGrids are attracting substantial interest because they have the potential to increase the use of renewable generation and micro-CHP. They can also defer investment in distribution capital plant and can improve local power quality. However the primary operational requirement of power systems is that they must operate safely from a user point of view, even during contingencies. Yet electrical safety of MicroGrids has received little attention to date.

This paper addresses this important area. The fault current distribution in a generic MicroGrid is investigated for different fault contingencies during grid-connected and islanded operation. Based on an extensive investigation of earthing systems, a grounding electrode system is then developed for the MicroGrid study-case so that safe step and touch potentials are obtained.