Assessing and managing the risk of arc flash

energy institute

ASSESSING AND MANAGING THE RISK OF ARC FLASH

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It also offers its own Chartered Energy Engineer, Chartered Petroleum Engineer and Chartered Energy Manager titles.

A registered charity, the EI serves society with independence, professionalism and a wealth of expertise in all energy matters.

This publication has been produced as a result of work carried out within the Technical Team of the EI, funded by the EI's Technical Partners. The EI's Technical Work Programme provides industry with cost-effective, value-adding knowledge on key current and future issues affecting those operating in the energy sector, both in the UK and internationally.

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FOREWORD

Arc flash poses a significant risk to personnel working on electrical systems, with high consequences including severe burns and death, as well as damage to equipment. There are numerous methods for calculating incident energy (the heat generated by an arc flash) and varying levels and standards of personnel protective equipment (PPE) for working on or near live equipment. Preventing direct contact live working should reduce the risk of arc flash, but a risk will always remain due to the limited ability for equipment enclosures to limit internal arc flash energies. Furthermore, there may be occasions when it may not be reasonably practical to work on equipment that is dead. Understanding the risk of arc flash, and how to manage it, can seem daunting.

The objective of this publication is to provide a practical approach to the management of arc flash risk within electrical installations. It provides general guidance on the causes of arc flash events and the dangers to personnel, along with a risk assessment process and hierarchy of control measures that can be used to reduce the likelihood of an arc flash and reduce its potential dangers. However, it does not provide detailed guidance on how to calculate incident energy levels (but does provide a brief overview of the key methods), nor detailed technical information about electrical systems.

The guidance seeks to address uncertainty within industry of when an arc flash risk may exist and how it should be assessed and controlled, as well at what level in the organisation the risk should be managed (i.e. by the frontline or management level controls). It also provides an overview of the various methods for calculating incident energy.

Whilst this publication will be informative for electrical specialists and non-specialist alike, and will give non-specialists an understanding of the causes of arc flash and how to manage the risk, it is primarily intended as:

a) guidance to inform the organisation on arc flash risk management, and

b) a practical tool to aid electrical engineers and others with specialist electrical knowledge to assess arc flash risks.

Therefore, it does not purport to contain all of the technical detail required to manage arc flash risk. The user of this publication should be familiar with local regulations relating to working on electrical equipment and have specialist electrical knowledge when applying the guidance in practice.

The EI welcomes feedback on its publications. Feedback or suggested revisions should be submitted to:

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