

Reducing Arc Flash in Common DC Bus Systems *by Abhay Kumar, Mike Bukovitz*

Abstract - Plasma is a quasi-neutral fourth state of matter and exhibits collective behavior beyond a distance greater than corresponding Debye Length - The analysis of the consequences of this fundamental of plasma physics is conspicuously absent from the arc-flash hazard analysis literature. This paper is an attempt to fill the void. A recently proposed DC arc model based on Magnetohydrodynamics of plasma is also discussed and applied to assess mitigation achieved by application of an arc-quenching system that uses light and current sensors to detect an arc-flash and closes a fast acting switch to nip the event in the bud.