

ELECTROMAGNETIC PULSE – EMP INTENTIONAL ELECTROMAGNETIC INTERFERENCE – IEMI



WHAT IS EMP?

Electromagnetic Pulse (EMP), also called High Altitude Electromagnetic Pulse (HEMP), results from the detonation of a thermonuclear device above the earth's atmosphere. It can present a threat to the power system across very large portions of the bulk electric system by causing simultaneous flashover faults (short circuits) on low voltage (distribution) portions of the power system. It can also destroy or damage unprotected electronic equipment resulting in the failure to sense, control, communicate and respond to power system conditions properly and also by preventing remote manual operation of the power system.

WHAT IS IEMI?

Intentional Electromagnetic Interference (IEMI), results from the intentional transmission of high energy radio frequency energy in an attempt to disable, damage or destroy a facility or asset by remotely assaulting its electronics. It is created by harnessing stored chemical or electrochemical energy to create a short, directed high power release of energy at radio frequency. It can present a threat to physical and cyber assets at a facility or several facilities in a coordinated attack resulting in the failure to sense, control, communicate and respond to power system conditions properly and also by preventing remote manual operations of the power system. This threat is similar to EMP in the sense that it attempts to degrade electronic assets but it is more local in scope and does not require nuclear technology.

Devices capable of causing harm exist as small hand held devices, up through suitcase-sized and as large as a mobile box truck. The threat from IEMI is somewhat similar to other physical threats that exist for facilities such as substations and control centers because it involves parameters such as access, proximity, line of site, and vulnerability of exposed targets.

HISTORICAL CONTEXT

EMP/IEMI are threats considered High Impact Low Frequency (HILF) events that have been known for many years. In recent years they have been gaining more importance. There have been two Congressional investigations on EMP with reports published in 2004 and 2008. In 2009 a formal report from the EMP commission was presented to the NERC board of directors. In June 2010 NERC and DOE released a joint report on HILF risks.

WHAT ITC IS DOING

ITC understands the importance of the reliability and resiliency of the Bulk Electric System for its customers and society in general. We are participating with industry and government to advance the understanding of EMP/HEMP and IEMI threats and develop appropriate mitigation measures, similar to other physical threats of attack to the power grid.

ABOUT ITC

ITC's investments in power transmission infrastructure lower electricity costs, improve service reliability and safety, and increase economic activity and tax revenues for customers, stakeholders and communities.



FOR THE GREATER GRID

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