Arc flash hazards can result from many factors, including dropped tools, accidental contact with electrical systems, build up of conductive dust, corrosion and improper work procedures. An arc is produced by flow of electrical current through ionized air after an initial flashover or short circuit, resulting in a flash that can cause significant heating and burn injuries to occur.

Electrical and safety industries are acknowledging that arcing faults can:

- Release dangerous levels of radiant heat energy capable of causing severe burns and ignition of clothing, which can result in treatment requiring years of skin grafting, rehabilitation and even death.

- Spray droplets of molten metal, with the explosion distributing the molten metal and shrapnel produced by the arc over a large area.

- Produce blast pressure waves that have thrown workers across the room and knocked them off ladders.

- Cause hearing loss from the sound blast related to the arcing fault.

- Workers may never regain their quality of life and may even die from exposure to an arc flash event. The Cost of treatment can exceed $1,000,000/case, along with potential litigation fees, fines, and escalation of insurance. Process losses can also be incurred.

Industry Regulations, Standards and Recommended Practices for Arc Flash:

Historically, the National Electrical Code (NEC) and other safety codes have been primarily

(continued on pg. 3)
The Conclusion

“Though OSHA does not, per se, enforce the NFPA 70E standard, 2000 Edition, OSHA considers the NFPA standard a recognized industry practice. The employer is required to conduct hazard assessment in accordance with 29CFR1910.132(d)(1). If an arc-flash hazard is present, or likely to be present, then the employer must select and require employees to use the protective apparel. Employers who conduct the hazard/risk assessment, and select and require their employees to use protective clothing and other PPE appropriate for the task, as stated in the NFPA 70E standard, 2000 Edition, are deemed in compliance with the Hazard Assessment and Equipment Selection OSHA Standard.”
concerned with protection from fire, electrocution, and shock hazard. Arc flash hazards were not addressed. This is changing.

The 2002 NEC contains requirements for warning labels and the National Fire Protection Association (NFPA) 70E 2000 & 2004 and Institute of Electrical and Electronics Engineers (IEEE) 1584 provide guidance on implementing appropriate safety procedures.

Although OSHA has not specifically addressed arc flash, existing and new provisions impact how it is addressed:

OSHA 1910.132(d), and 1926.28(a).

OSHA considers NFPA 70E a consensus industry standard for assessing arc flash standards. The employer is responsible to:
1. Assess the hazards in the workplace
2. Select, have, and use the correct PPE
3. Document the assessment

OSHA considers Arc Flash assessments that follow NFPA 70E, in compliance with OSHA requirements, and the accepted practice to protect workers from electrical safety hazards.

A Landmark agreement has been forged between OSHA, IBEW and NECA contractors to use NFPA 70E to protect electricians in Columbus, Ohio, which could set the trend for the Nation.

Evaluating Arc Flash Hazards
In analyzing the system it is important to consider several critical factors that can significantly impact PPE requirements, including system power distribution configuration changes, various plant operating modes, protective equipment selection and settings, working distances, work practices, etc.

In reviewing the requirements it becomes obvious that companies will be required to make Arc Flash Hazard a part of an ongoing, documented safety program.

Implementation of an Arc Flash Hazard Program.
A few of the Benefits of a Comprehensive, Coordinated Program:

Developing and Implementing an ongoing arc flash hazard Program (AFH) that meets the new regulations noted in NFPA-70E, IEEE-1584 and the current OSHA Standard 29 could be challenging.

Rule of thumb methods could result in both unnecessary worker exposures to hazards from under protection and significant lost worker productivity due to overprotection.

Can It Happen At Your Plant?
Some important statistics...
Five to Ten Arc Flash Explosions occur in electric equipment every day in the U.S (based on statistics compiled by CapSchell, Inc., a Chicago based research and consulting firm that specializes in preventing workplace injuries and death).

Bureau of Labor Statistics data for 1994 show 11,153 cases of reported days away from work due to electrical burns, electrocution/electrical shock injuries, fires and explosions.

The Census of Fatal Injuries noted 548 employees died from the causes of electrical current exposure, fires and explosions out of 6,588 work related fatalities nationwide.

In the US Chemical Industry, 56% of the fatalities that occurred over a 5-year period were attributable to burns, fires and explosions, with many of the ignition sources being related to electrical activity.

Industry is recognizing the benefits of obtaining accurate arc flash hazard data. Recently, the PCIC safety committee recommended that arc flash calculations be completed in conjunction with short circuit calculations and protective device coordination to help ensure that the most accurate arc flash hazard results were achieved.

EasyPower’s own comparisons between EasyPower ArcFlash and the other methods indicate that the use of EasyPower ArcFlash could save companies thousands of dollars annually, per
Some of the requirements of NFPA 70E (Standard for Electrical Safety in the Workplace) and how Easy-Power helps companies address them.

### NFPA 70E Requirements

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### Here's more help from the experts at EasyPower.

Practical Guide to an Arc Flash Solution is 162 pages of pragmatic advice that can help you find your way through the requirements and get to compliance.

The best part is that it is absolutely FREE!

All you have to do is go to the Arc Flash Resource Center on the EasyPower website [www.EasyPower.com](http://www.EasyPower.com) and request it.