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# Enhancing Electrical Safety Programs

Over the past several decades, I have served as an electrical safety professional, working with businesses to draft, implement, and continuously improve their electrical safety program. With the theme of this issue of *IEEE Industry Applications Magazine* focused on electrical safety, I thought it would be appropriate in this article to share some recommendations based on my experience.

In every organization, a committee should exist that is responsible for the electrical safety program. The committee membership should include electrical engineering, safety management, electricians, operators, and nonqualified persons whose job requires them to work in areas where an electrical safety hazard exists. Often times, operator input to safety is overlooked. Their knowledge is important to improve safety in the facility.

This committee should be responsible for continually considering improvements to the electrical safety program. Remember, compliance with standards is not enough. Standards are the minimum requirements. Every safety program should

include organization-specific safety issues, in addition to the minimum requirements outlined in standards.

Many companies base their electrical safety program on NFPA 70E, *Standard for Electrical Safety in the Workplace* [1]. Certainly, every safety program should include industry-specific guidelines. For example, refineries, paper mills, construction companies, and companies operating electric cell lines have vastly different safety issues.

Management is responsible for safety in the facility. Management needs to continually promote electrical safety practices. Strong leadership improves safety.

Workers tend to follow what they perceive is important to management. If workers believe management sees production as more important than following safe work practices, they may tend to take shortcuts when production could be affected.

Organizations need to take steps to ensure technology changes are considered when the electrical safety program is updated. Considering “safety by design” issues during the design stage is important. Leadership decisions made during the design stage can help improve safety in the facility.

Businesses should ensure the electrical safety program includes requirements for training unqualified workers that may be exposed to electrical hazards, as well as training for qualified workers. Statistics show that many incidents and fatalities that occur

are due to the lack of training to perform tasks.

Sixty-eight percent of all electrical incidents happen to unqualified workers who are exposed to electrical hazards. Safe work practice training should also include work practices required to work around

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**FIGURE 2.** Attendees of the 2023 CMD workshop.



**FIGURE 3.** Student chapter members networking with experienced chapter volunteer leaders.

both in their professional and personal lives.

CMD is in preparation for this year's annual workshop, which will be organized once again in conjunction with the IAS Annual Meeting 2024 on 20 October 2024, in Long Beach, CA, USA. I recommend that chapter chairs or representatives interested in participating and utilizing this excellent networking opportunity, apply for the AMTGP program (<https://ias.ieee.org/member-development/travel-grant-programs/>).



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overhead lines if these exist in the facility. Many incidents that occur are caused by contact with overhead lines [2].

Periodic assessments of the electrical safety program are important. A good safety program outlines the work practices required to be followed in the facility. Assessments help determine if improvements are required in how the work practices are being performed [3]. Ensure that instant investigations held in the facility include fact-finding not fault-finding information. Instant investigations help point out where improvements in the safety program may be required.

A work practice that deviates from the safe work practice can become “normal operation” because no incident occurred. A long incubation period may exist with early warning signs that were either misinterpreted, ignored, or missed completely before a final disaster occurs [3]. This allows an unsafe work practice to become “normal operation” if it does not immediately cause a catastrophe.

It is important to continually improve the safety requirements in any electrical safety program. Consider technological changes that can improve the document. Qualified people can and do make mistakes.

Consider actions that can be implemented before an incident happens to minimize exposure to residual risk. Job briefings before start of work are one method to help ensure workers understand the residual risk that may be present.

### References

- [1] *Standard for Electrical Safety in the Workplace*, NFPA 70E, 2024.
- [2] B. Brenner and D. Majano, “Why do electrical fatalities occur on the job? Understanding the human factor of a fatality,” in *Proc. IEEE Elect. Saf. Workshop Conf.*, 2023, pp. 60–67.
- [3] D. R. Crow and D. Mohla, “Auditing your electrical safety program,” in *Proc. Petroleum Chem. Ind. Committee Conf.*, 2023, pp. 557–564.

