



Safety Measures

ELECTRICAL

“Elimination is the first priority!
Ensure a risk assessment is completed before energized work tasks are completed.”

Knowledge Is Power: IEEE Electrical Safety Workshop 2024

By Terry Becker, P.Eng., CEMCP, IEEE Senior Member

I have attended the IEEE Industrial Application Society (IAS), Electrical Safety Workshop (ESW) for 19 years. This year it was held in Tucson, Arizona from March 5-8, 2024. When I started my electrical safety journey in 2005 I became aware of the IEEE ESW and attended my first conference in Denver, Colorado in 2005. It became a catalyst for my passion in electrical safety. It is the only conference that I am aware of organized by an organization such as the IEEE that is devoted to electrical safety, and with the format that it utilizes. I presented my first paper at the 2007 IEEE ESW in Calgary.

The conference starts on Monday with electrical safety related Standards development Technical Committee meetings,

Tuesday morning is always Tutorials, and the Technical Papers start at noon on Tuesday. There is only a single track, so you never miss a presentation.

Wednesday includes papers in the morning and then an electrical safety focussed exhibition in the afternoon, one-stop shopping for the latest in electrical equipment technology, arc flash & shock PPE, tools & equipment, consulting services, and associations related to electrical safety and electrical equipment maintenance (e.g. ESFi, NETA, etc.).

Thursday is a full day of technical presentations, yes a busy day, but amazing opportunity to learn, benchmark, network and ask questions.

Friday AM technical papers continue and the conference officially ends at noon. Friday PM offers another opportunity for tutorials.

All of this is scheduled with an amazing amount of time to network, catch up with attendees, meet new friends and get caught up with old friends. Networking alone at the IEEE ESW is unbelievable!

As far as Canadian attendance, I would say we average at least 50 or more every year, but we need this number to grow! Many Canadian presenters are showcased every year.



Here Are Some Highlights From the 2024 Conference

On Monday, an IEEE P1584.2 technical committee meeting was held; this is a supplement to IEEE 1584 which focuses on data collection for arc flash hazard incident energy analysis studies. IEEE P1814 Recommended Practice for Electrical System Design Techniques to Improve Electrical Safety technical committee meeting also occurred. This is a new recommended practice.

I attended an amazing tutorial related to batteries on Tuesday morning. This tutorial provided information related to batteries on UPS systems and in relation to battery energy storage systems.

Technical papers covered a broad scope of subject content as they do every year:

1. Does NFPA 70 and NFPA 70E Add Electrical Safety Value to Electric Utilities?
2. Case Studies in Battery Risk Assessment.
3. Equipotential Zone Grounding and Bonding at 41.6/13.8kV Switchgear and Loads Why's / Challenges / How's?
4. How Variability in Arc Ratings is Stifling Innovation in Development of Arc Rated Clothing.
5. Modeling the Conversion of Electrical Energy to Acoustical Energy for Arcs and Applications for the Selection of PPE.
6. The Challenges of Troubleshooting.
7. Realistic Predictions of Maximum Arc-Flash Energy.

8. Electric Shock Incident Investigation Utilizing In-Depth Electric Exposure Reconstruction Techniques.
9. Electric Shock Near Mist, An Ungrounded Messenger Cable.
10. Electrical Safety Leading Indicators.
11. Role Specific Approaches for Incident Investigation.
12. Analysis of Live Work Accidents in Overhead Power Lines and Other Electrical Systems Between 2010-2022.
13. A Tale of Two Standards (CSA Z462 and NFPA 70E).
14. Arc Flash Analysis for Antarctica Research Facilities.
15. Racking Out or In Power Circuit Breakers is Simple Isn't It?
16. Electric Vehicle Charging Safety – The State of Art, Best Practices, and Regulatory Aspects.
17. NFPA 70E Proposed DC Arc Flash Updated Guidance.
18. Protective Wall: Arc Cube Installation.
19. Making a Business Case for Electrical Safety in the Workplace.
20. Arc Flash in Single Phase Power Distribution.
21. Evaluating Substations to the 2023 NFPA 70B Standard.
22. The Likelihood of an Unlikely Incident.
23. Grounding and Bonding of Separately Derived Outdoor Transformers Feeding a Building.
24. Electrical Fatal Accident by Electric Shock and Epidemiology in 2018.

The Conference exhibition had well over 40 exhibitors.

I attended a tutorial on Electrical Incident Investigation on Friday afternoon. This was an amazing tutorial that specifically reviewed three electrical incidents that Google Inc. experienced. Group discussion occurred and practice review of mock electrical incidents was completed.

I wish I could truly communicate to you the benefits of attending this conference. I attend it for many reasons, several that I listed above, but also to maintain my electrical safety subject matter expertise, recharge my passion for electrical safety and benchmarking what I know and share with industry in Canada, the USA and Internationally. I would encourage you to attend. If you have any questions do not hesitate to contact me to discuss.

I will continue my efforts to communicate information in Electrical Safety Measures and share the knowledge and experience I have in an effort to "Get it Right!" My electrical safety journey and mission will continue. Knowledge is power!

See you in Jacksonville, Florida in 2025!

If you are interested in discussing the information presented in this article or would like a specific topic presented contact me at terry.becker@twbesc.ca or 587.433.3777.



Terry Becker, PEng., CESC, IEEE Senior Member is a founding member and the First Past Vice-Chair of the CSA Z462 Workplace electrical safety Standard Technical Committee and currently a Voting Member and Clause 4.1 and Annexes Working Group Leader. Terry is also a Founding Member and a Voting Member on the CSA Z463 Maintenance of electrical systems Standard and a Voting Member of the IEEE 1584 Guide for Performing for Arc-Flash Hazard Calculations. Terry has presented at Conferences and Workshops on electrical safety in Canada, the USA, India, Australia and Italy. Terry is a Professional Engineer in the Provinces of BC, AB, ON and PEI. Terry is an Electrical Safety Specialist, Management Consultant, and can be reached at 587.433.3777 or by email terry.becker@twbesc.ca.