

BENEFITS

Be Safe and Compliant

Arc flash is a serious hazard with potentially devastating effects. Ensuring worker safety and meeting the challenges of the new arc flash safety requirements can be a difficult task.

Trust Vertiv™ to deliver the most complete solutions for arc flash compliance. From risk assessment and labeling to personal protective equipment (PPE) and training, Vertiv's Electrical Reliability Services team is your source to reduce your risk, provide the industry's best safety programs, and ensure regulatory compliance.

Whether you require a complete program or short-term assistance with arc flash calculations, Vertiv has a solution to fit your needs.

Benefits

- Ensure compliance with regulatory requirements
- Avoid costly fines and higher insurance costs
- Improve worker safety
- Reduce lost worker productivity
- Ensure optimum system performance, safety and efficiency
- Minimize threats to your critical facility with solutions from a single source



Ensure worker safety and regulatory compliance with comprehensive arc flash solutions

Electrical hazards, specifically shock, arc flash and arc blast, can result in serious injury or death to electrical workers.

Ensuring safety and meeting regulatory requirements can be difficult to accomplish in-house without the assistance of resources familiar with industry standards and recommended practices.

Consider the benefits of partnering with Vertiv to help develop and implement a complete, cost-effective arc flash solution.

Our arc flash solutions include:

- Risk assessment
- Hazard labeling plan
- Site review/compliance assessment
- Protective scheme design review
- Single-line diagrams
- Short circuit and coordination studies
- Preventive maintenance
- Electrical safety program review/development
- Training and performance evaluation
- PPE plan
- Optional annual re-certification
- Documentation

Risk Assessment

The National Fire Protection Association's Standard for Electrical Safety in the Workplace® (NFPA 70E) requires facility owners to perform an arc flash risk assessment prior to allowing a worker to perform a task on or near energized equipment. The risk assessment identifies the presence and location of potential hazards and provides recommendations on PPE, boundaries for limited and restricted approaches, flash protection, and safe work practices.

To calculate incident energy, technical data is reviewed and additional data is collected, such as equipment type, voltage, ratings, impedance, etc. The safest option to conduct this assessment is to utilize an outside contractor trained in this procedure. The technical staff of Vertiv™ is “qualified” according to the National Electrical Code definition. Our technicians have undergone specific training in the hazards of working on energized equipment, and the use and proper application of PPE.

To provide accurate results, state-of-the-art software is utilized to perform arc flash calculations in accordance with the standards of NFPA and the Institute of Electrical and Electronics Engineers (IEEE). This software enables users to evaluate alternatives quickly and easily in order to establish optimal protective schemes and device settings.

Hazard Labeling Plan

NFPA 70E mandates that electrical equipment such as switchboards, panelboards, industrial control panels, and motor control centers that are likely to require maintenance while energized, must be field marked with a label. Vertiv can assist with compliance during each phase of an arc flash risk assessment. Once the initial assessment has been performed, Vertiv supplies the labels and can assist in applying the appropriate hazard warning labels. As part of an ongoing labeling plan, updated labels can be provided to accommodate equipment, system, or regulatory updates.

Site Review/Compliance Assessment

The Occupational Safety and Health Administration (OSHA) can and does enforce the NFPA 70E guidelines. To ensure compliance, Vertiv will determine the steps needed to meet OSHA and NFPA requirements. By conducting a comprehensive assessment to identify areas of risk and non-compliance, we will formulate a plan to bring your facility into compliance in the most efficient way possible.

Protective Scheme Design Review

Vertiv's technical staff will conduct a protective scheme design review and operational assessment of your electrical distribution system to identify areas for reducing potential arc flash hazards. Several areas are evaluated including fault current levels, arc exposure times, operational procedures (such as remote breaker control and remote racking), and system grounding. Employing special devices and altering current design can significantly reduce fault levels, arcing time, arc incident energy, and arc blast force.



"It was necessary for us to have one vendor for our arc flash, safety, and training programs. Based on our previous experience with Vertiv™, we knew we would receive world-class experience and solutions that would address all of our critical needs. We are very satisfied with every phase of the program we received."

- RAMY MAHARAJ, UTILITY MAINTENANCE SUPERVISOR, CITY OF BOCA RATON UTILITY SERVICES

Conducting a design review is the most effective way to uncover potential hazards so options can be evaluated and mitigation strategies can be employed.

Single-Line Diagrams

NFPA 70E requirements mandate accurate, up-to-date single-line diagrams. These schematics are essential for documenting, troubleshooting, and communicating information about your power systems. To meet these requirements, Vertiv conducts a comprehensive site survey that is essential to developing or updating existing single-line diagrams or completing electrical system drawings.

Short Circuit and Coordination Studies

To achieve the most accurate arc flash hazard results, the Petroleum and Chemical Industry Committee (PCIC) recommends that arc flash calculations be completed in conjunction with short circuit calculations and protective device coordination. Short circuit and coordination studies verify protective device ratings, calculate momentary and interrupting currents, establish settings for all types of protective devices, and coordinate protective devices to minimize downtime. Vertiv specializes in conducting these studies which provide critical information you need to ensure compliance with NFPA and OSHA requirements.

Preventive Maintenance

NFPA 70E now requires maintenance to be performed on electrical equipment in accordance with manufacturers' instructions or industry consensus standards. Vertiv will assist in developing a preventive maintenance program to specifically address arc flash hazards. Our optimized preventive maintenance program evaluates the equipment's condition and determines the most cost-effective and manageable solution to ensure your protective devices operate properly, safely and reliably. This eliminates prolonged exposure to arc flash, which could result in disabling injuries or death.

Electrical Safety Program Review/Development

OSHA requires every facility to establish an electrical safety program. Vertiv will assist in reviewing or developing a comprehensive electrical safety program that supports an overall site safety program.

An effective program should be designed to provide training and create awareness of potential electrical hazards. It should also identify hazard/risk evaluation procedures; electrically safe work procedures, tools and PPE; and risk mitigation strategies. The electrical safety program must be documented and audited at least every three years. As part of the overall safety program, we will assist you in developing an effective safety audit process; creating and maintaining a safety manual; and planning and conducting safety meetings.

Training and Performance Evaluation

An effective arc flash training program should provide workers with the knowledge and understanding of the existence, nature, and causes of electrical hazards, and methods for preventing them. Vertiv's arc flash training can include sessions on building employee awareness of the potential electrical hazards present; identifying arc flash hazard and assessing risk; understanding of quantities, selection, and use of appropriate arc flash PPE; reading and following hazard warning labels; and reducing risk while working on live exposed parts. Training can also cover safety policy review and recommendations; overview of applicable standards and codes; and required documentation.

PPE Plan

PPE plans developed by Vertiv™ address all relevant OSHA standards to ensure compliance. Based on the findings of the arc flash risk assessment, we will provide PPE category requirements and recommendations. We can also assist in the selection and supply of recommended equipment on which workers will be trained. Our team will address when PPE is necessary and what equipment is needed. Vertiv's approach covers how PPE should be worn, maintained, and disposed of after the equipment life has expired.

Optional Annual Re-certification

Ongoing arc flash hazard research and development will likely produce additions to arc flash requirements. As modifications or expansions to your electrical distribution system are made, or as changes occur in the electric utility system, it will be necessary to update arc flash assessment information on a regular basis.

It will also be necessary to update worker training on an annual basis. Vertiv can provide annual follow-up site visits to ensure continued compliance with applicable arc flash standards, practices and regulations. The site inspection includes a written report of findings and recommendations.

Documentation

Proper documentation ensures compliance with OSHA and NFPA standards, and facilitates an investigation should an arc flash related injury occur. Thorough documentation is one of Vertiv's strengths. Our arc flash compliance plan consists of a customized written report that includes results of the arc flash risk assessment; updated single-line drawings of electrical systems; and signs and labels on equipment and in hazardous areas. Also included are the type, name/ID, incident energy at working distances, flash protection boundary, arc flash PPE category, and other pertinent information such as voltage, available fault current, protective device description and its trip time, arc gap, and arc current. Documentation can also be provided as part of the safety program and documentation of training provided to workers.

Summary

Arc flash is a serious hazard with potentially devastating effects. NFPA 70E requirements aid users of electricity in understanding how to reduce the probability of an arc flash event. Therefore, OSHA strictly enforces these requirements. By complying, your facility supports the goal of reducing injuries and downtime. However, you don't have to go it alone. Rely on the experts at Vertiv to help you implement an arc flash program. Whether you require a comprehensive program or short-term assistance with arc flash calculations, we can help. Establishing an effective arc flash program will help reduce your risk, provide required worker safety, and ensure regulatory compliance.

Ordering Information

To learn more about this service and other Vertiv solutions, please contact your local sales representative office for Vertiv's Electrical Reliability Services or visit VertivCo.com. In the United States, call 1-877-468-6384.