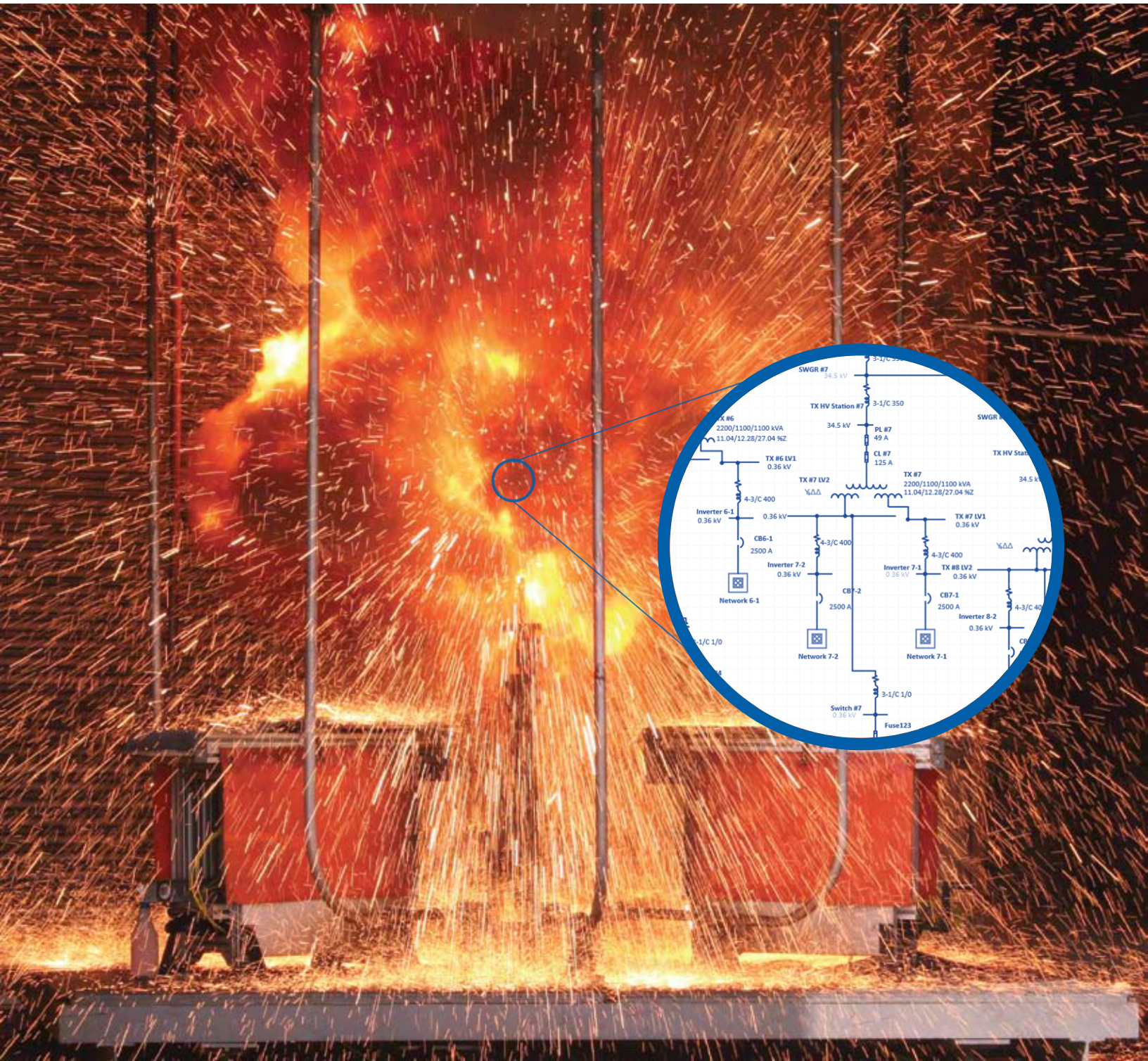
KINECTRICS

ARC Hazard Services

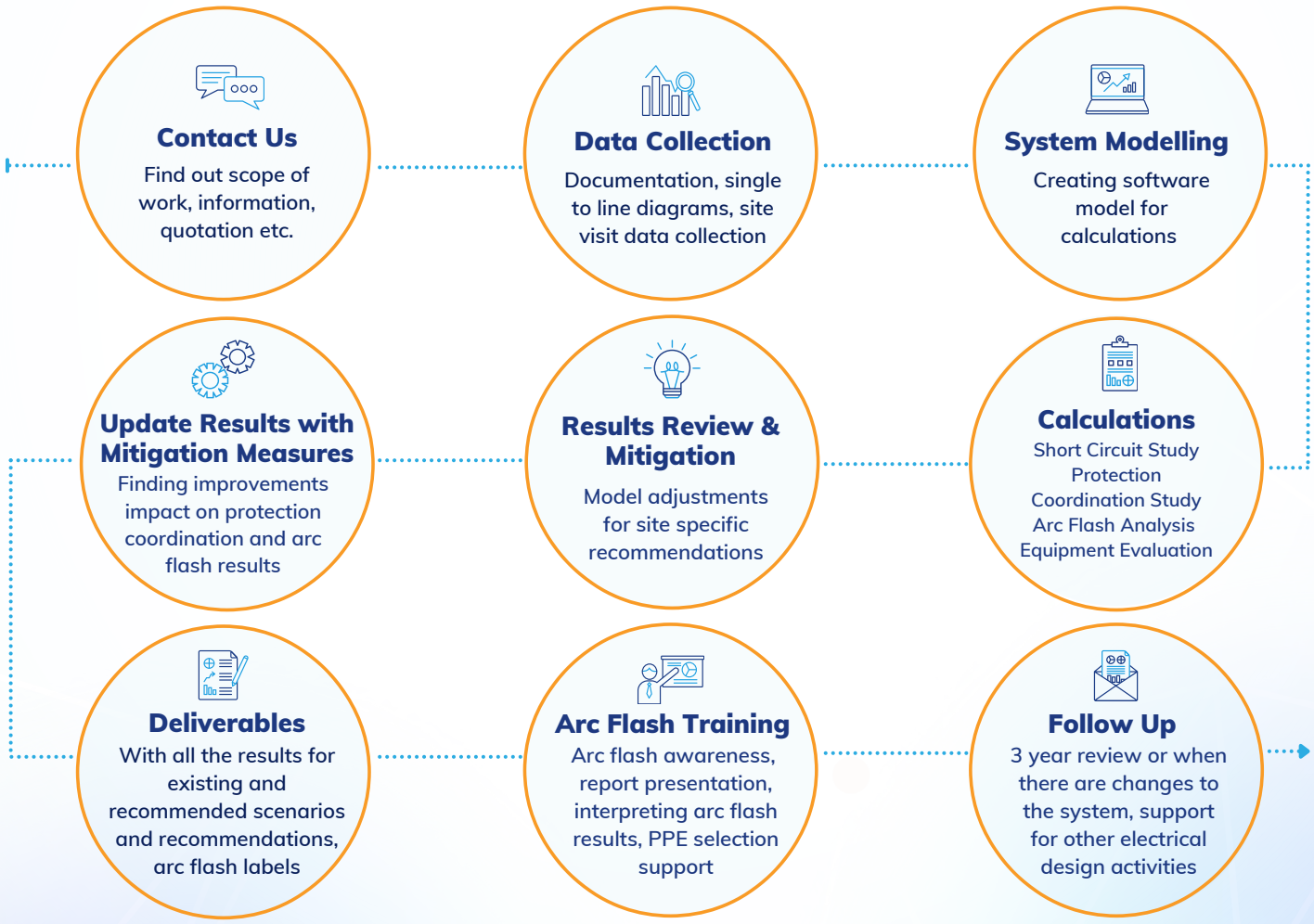
Comprehensive Arc Hazard Assessment, Consulting and Training Services by Leading Industry Experts



Arc Hazard Analysis

The first step in protecting your workers from electrical hazards is to analyze exactly what arc hazards may be available in each unique industrial and utility location. Determining the actual arc hazard is another premier service of Kinectrics. Determining safety measures such as protection coordination measures and the correct PPE level follows that.

How do we do it?



Through engineering analysis — using the latest in analytical tools — Kinectrics defines inputs for the above variables and computes for the end user, the amount of radiant and convected thermal energy available at particular sites. Kinectrics can then recommend to clients the protective clothing that is suitable for workers who may be accidentally exposed to electric arc in their facilities. The Kinectrics advantage is a comprehensive understanding of the necessary input variables, and outputs, of the various computation techniques. Kinectrics' staff understand — and can accurately and appropriately apply — the requirements of the many industry standards such as IEEE 1584, NESC, NFPA 70E, CSA Z462 CAN/ULC S801 and OSHA on Arc Hazard Assessment. Kinectrics has successfully completed numerous projects for major North American utilities and has provided advanced technical support for international research and testing projects designed to increase scientific understanding of issues related to arc flash phenomena.

Arc Hazard Engineering Training

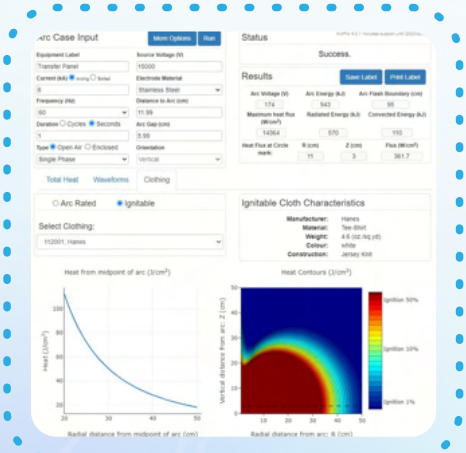
Learn from the Experts – Kinectrics' practical expertise and leading-edge knowledge in arc hazard testing and assessment is now available through our specialized training courses. Kinectrics' courses are taught by experts, and include case studies and demonstrations in our world class labs and state-of-the-art testing facilities.

Kinectrics' courses are developed using the energy industry's Systematic Approach to Training for Adult Learning. Attend a public session at Kinectrics, or call us if you wish to have a dedicated course on-site at your location or Kinectrics' offices.

Kinectrics' full Arc Hazard Engineering Course is designed for engineers in utilities and industry, safety officers, program managers, and procurement staff who are responsible for arc hazard assessment in the selection of protective equipment and clothing. This one-day course covers in-depth training in arc flash calculations and PPE.

See www.kinectrics.com for courses and schedules.

ArcPro™ Software for Arc Hazard Assessment & PPE Selection



ArcPro™ has become the industry's most widely-used application for computing arc hazards and selecting protective clothing for single arc situations, particularly for medium voltage and high voltage Transmission and Distribution applications that other methods do not address.

A state-of-the-art program, ArcPro™ includes a physics based model of electric arcs. The software models high power arcing by taking into account such complex variables as gas properties, arc electrode materials, thermal radiation and convective energy dissipation. ArcPro™ considers the arc current, arc duration, arc gap, worker's distance from the arc, and a number of other factors required in the accurate assessment of arc exposure. ArcPro™ computations have been verified by live arc testing in Kinectrics' High Current Laboratory.

Calculating the Arc Hazard

Kinectrics' ArcPro™ software is an easy-to-use computer program for the calculation of radiated and convected thermal energy from electric arcs. This highly-effective tool offers proven value in helping utilities and other industries select protective clothing and meet workplace regulations for safety apparel.

ArcPro™ benefits include:

- **Ability to easily define arc hazards and select appropriate protective clothing**
- **Accurate definition of clothing performance to meet arc conditions**
- **A reduction in safety clothing budget expenditures, while ensuring workers remain protected**
- **Documentation for modified work practices to remove staff from hazardous areas**
- **User-accessible FR (Fire Resistant) clothing databases**
- **Compliance with the mandates of safety authorities**

ArcPro™ Key Features

- Generates, saves and prints warning labels
- ITERATIVE ENGINE to calculate a working distance for a prespecified Incident Energy Threshold
- ITERATIVE ENGINE to calculate a fault clearing time for a prespecified Incident Energy Threshold
- Performs bolted fault current to arcing fault current conversion
- Supports multiple languages including French, German and Spanish
- Automatic software updates for subscribed users
- High-resolution heat flux graph display
- Can perform DC in-box arc flash calculation
- Can specify fault duration in seconds or cycles
- Can perform three-phase arc flash calculations with different electrode orientation using IEEE1584-2018 equations
- Ability to specify frequency, 50Hz, 60Hz and 100 Hz (for worldwide and specialized applications)
- Ability to specify X/R Ratio and Closing angle (rad) for waveforms

Kinectrics offers complete and world-renowned capabilities for arc testing of **Personal Protective Equipment** (PPE), **arc hazard analysis** and **PPE selection.**

www.kinectrics.com

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