

## Earl D. Calder, PE | Senior Electrical Engineer

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### Professional Summary:

Mr. Calder is a licensed Professional Electrical Engineer in multiple jurisdictions throughout the United States and has worked for over twenty years in the electrical engineering profession designing power distribution systems including medium voltage substations, switchgear, motor control centers, and feeds to individual building loads. During his career he has had the opportunity to manage and oversee the installation of numerous industrial electrical projects as well as test and trouble shoot many installation issues.

Mr. Calder's strong background in design, construction support, inspections and operations has provided him with a keen understanding of electrical systems and causes of potential failures. Investigations of a wide variety of residential, commercial and industrial incidents have provided a solid knowledge of incident investigation procedures.

Mr. Calder was additionally an expert in safe operation of gas fired carbon electrode baking furnaces having been the global chairman of a carbottom baking furnace process safety/improvement team for seven years. Process changes were developed and implemented that were successful in bringing an end to a history of baking furnace unplanned pressure releases/explosions. Mr. Calder also has prior experience in analysis of systems and processes for potential failures due to combustible dust explosions.

Mr. Calder has investigated a wide variety of electrical systems and investigation categories including audio/visual equipment, code compliance, commercial and residential fires of electrical origin, lighting damage, solar panel failures/fires, fire alarm system failure, and industrial electrical failures.

Mr. Calder has provided building consulting services to assist clients with evaluation of repair/replacement proposals. Additionally, wipe and tape sampling has been performed in fire damaged locations to provide data for making recommendations for soot and smoke damaged equipment cleaning.

### Licenses and Certifications:

Professional Engineer (Additional states available upon application)

Alabama, 40124-E

Arkansas, 6302

Colorado, PE.0061767

Kansas, PE28934

Kentucky, 36386

Louisiana, PE.0047018

Missouri, PE-2022011955

North Carolina, 060076

Oklahoma, 33119

Oregon, 100459PE

Tennessee, 124896

Texas, 144574

Mississippi, 31699  
Iowa, P29772

National Engineering Registration, NCEES 21-836-18  
Master Electrician - Arkansas, M-2778

Washington, 22010389  
South Carolina, 44374

### Project Experience:

The sample projects here outline a small sampling of the types of projects and losses Mr. Calder has performed and investigated. For further information or examples please contact EFI Global.

#### **Tokai Carbon, Ozark, AR Design and Installation of 54 MVA Substation**

Project to provide a 54 MVA, 23 kv feed and substation for two 23kv to DC transformers/rectifiers.

**SGL Carbon, Ozark, AR  
Design and installation of power supply for 9 DC furnace and 240ka aluminum buss**  
Project to provide DC power for 9 high temperature electrical resistance DC furnaces and corresponding 200v, 240 ka buss system requiring focus on magnetic forces impacting the parallel DC bus installation.

**SGL Carbon, Ozark, AR  
Design and installation of multiple 1600a – 3200a, 480v switchgear, generator backups with transfer switches, and 480v/120v distribution panels**  
Project to provide power to all cooling systems, control systems, cranes, processing equipment, etc in 3 large manufacturing buildings.

**SGL/Tokai Carbon, Ozark, AR  
Fire Incident Investigations**  
Conducted multiple fire incident investigations within the facility to identify root causes and implement corrective actions to prevent reoccurrence.

**Large Apartment Complex Total Fire Loss, Oklahoma City, Oklahoma**  
Represented the carrier for an electrical contractor after a fire destroyed an apartment complex as soon as the electrical utility energized power. Subsequent analysis determined the fault was a subcontractor for the utility that switch one phase and the neutral on one transformer.

**Loading Port Conveying System Fire, New Orleans, LA**  
Investigated the electrical cause of a large conveying system fire designed to load bulk materials on a ship.

**Arc Fault Failure of a Switchgear and 3 MVA Transformer Supplying the Switchgear, Little Rock, AR**  
Analyzed the failed electrical components to determine the cause of an arc flash event that damaged the transformer and switchgear with a determination the electrical contractor had damaged one set of conductors in a conduit connecting the two failed devices, resulting in a phase to phase short in the conductors and very high fault current.

### **Roof Mounted Solar Panel Fire – Industrial Building, Clarksville, Tennessee**

Investigated a fire that damaged a large section of solar panels and roof of an industrial building. Failure of connectors recently removed and reconnected by a roofing contractor was determined to be the cause of the event.

### **Residential Fire Total Loss, Grove, Oklahoma**

Investigated a fire that was alleged to have been the result of work performed by an electrical contractor installing the power panels. Provided an expert witness deposition regarding the findings of the investigation.

### **Lightning Losses/Claims**

Many lightning loss claims have been investigated involving residential, commercial and industrial sites. Physical damage was investigated, and lightning data reports were used as needed to validate the observations and findings.

### **Specialized Education:**

Electrical Transmission & Distribution Safety/Exam, Dec 2018  
Power Factor in Electrical Energy Management/Exam, Dec 2018  
Lightning & Static Electricity Protection, Dec 2018  
Controlling Electrical Hazards, Dec 2022  
Electrical Distribution Systems, May 2022  
Half Century Transformers, SD Myers 21 hrs, Dec 2013  
National Electrical Code Review/Exam – Renewal training/exam every 3 years since 1986  
Arkansas Engineering Law, Nov 2012  
Louisiana Code of Ethics Dec 2022  
CFI Trainer – Series of fire investigations topics following NFPA 921 and NFPA 1033. – Jan 2023  
EFI Training – Tape and Wipe sample training for determination of corrosive soot and smoke contamination of equipment – June 2023  
Understanding Fire Through the Candle Experiment, CFI Trainer, Dec 2023  
Investigating Motor Vehicle Fires, CFI Trainer, Dec 2024  
Professional Ethics, PDH Online, Dec 2024

### **Court Qualifications/Depositions:**

James & Lenda Bales dba King Point Resort vs AMP Electric, District Court of Delaware County, Oklahoma. Served as an expert for the defense of AMP Electric regarding a \$1.1 M fire loss. June 27, 2024

Alan & Heather Wade vs PowerHouse Lithium & Waymakers Marine, Circuit Court of Mobile, Alabama. Served as an expert for the plaintiff for a \$1.2 M loss sustained due to a fire. August 11, 2025



### Professional Experience:

EFI Global, Inc, Electrical Engineer, Feb 2021 - present  
Tokai Carbon, Plant Manager, 2018 - 2020  
SGL Carbon, Engineering/Maintenance/Production Manager, 2013 – 2017  
SGL Carbon, Global Projects (Malaysia, Germany, Spain, US, Austria), 2004 – 2012  
SGL Carbon, Engineering/Maintenance Manager, 1987 – 2003  
Great Lakes Carbon, Process Engineer, 1980 - 1986

### Education:

Bachelor of Science, Electrical Engineering, University of Arkansas, Fayetteville, AR, 1980