

# CIRCUIT BREAKER ANALYZER



## GREENLIGHT GREENPAPER

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The goal of this project was to contribute to the development of the next generation CBA-1000 Circuit Breaker Analyzer and improve its branding to raise awareness of this product as a sustainability solution.



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A common cause of building fires is circuit breaker malfunction. The CBA-1000 was developed to test circuit breakers; to save thousands of buildings from fire annually. Two areas for improvement had been identified by the Project Partner to promote the widespread use of the CBA-1000, as follows:

- The two-part design, short lifetime, and relatively low reliability of the Mechanical Contactor created the need for a Circuit Breaker Analyzer. This presented us with the opportunity to replace the Mechanical Contactor with a Solid-State Switch, to improve the durability, reliability, and cost of the product, and combine the front and back ends of the device into one piece.
- The brand of the product needed to be reinvented. This presented an opportunity for our team to identify strategies to promote the product and expand KO Instruments' customer base.

Engineering solutions:

- Comparison of Mechanical Contactors with Solid-State Relays (SSRs)
- Identification of SSRs and heat sinks that satisfy the needed requirements, specifications, and constraints of the device to serve as potential drop-in replacements

Branding solutions:

- Research on electrical building fires and the sustainability aspect of building fires to improve the messaging of the product, ensuring that the need for the product is clear and comprehensive
- Marketing strategy recommendations to increase awareness about the importance of the product and diversify the pool of customers
- Gathered data for future marketing strategy analysis

#### **BENEFITS TO PROJECT PARTNER**

The SSR analysis and selection will help the Project Partner move forward with the design of the next generation CBA-1000. The research on electrical building fires and their sustainability impacts will be useful in creating awareness about the need to test circuit breakers. With the proposed marketing and branding strategies, the Project Partner can build relationships with potential customers and enhance past connections.

#### **BENEFITS TO SOLUTIONEERS**

Through the course of this project, the project team members gained valuable knowledge and real-world experience in the areas of circuit breakers, protection systems, SSRs, and branding. We were encouraged to analyze an engineering problem from a sustainability point of view. We honed our research, presentation, and project management skills and had the opportunity to apply our theoretical knowledge in a professional setting.

#### **BENEFITS TO THE COMMUNITY**

Community members will have raised awareness on the dangers of circuit fires and be introduced to the CBA-1000 that can protect their families and homes from circuit fires.