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## **MOTORS TURN GREEN! Brithinee Electric and UCR Engineering School Host SCE Engineers**

**November 8, 2010, Colton, CA**—Brithinee Electric recently welcomed engineers from Southern California Edison to discuss the latest advances in electric motors. Speakers included Baber Inayat, V.P. Technology and David Cain, Manager of Product Applications, both from the world’s largest manufacturer of magnet wire, Superior Essex, of Fort Wayne Indiana. Also in attendance were Wayne Greer, Manager of Product Applications, of SKF Bearings, Norristown, PA.; Mark Winkeler, Application Technology Manager, of Elantas PDG Inc., a leading manufacturer of magnet wire coating and insulating resins; and, Dr. Xin Xue , who heads up research and development for Brithinee Electric.

Most speakers included subjects that impact the green aspects of motor technology, which is of particular interest to SCE. Many ratings of three phase electric motors will be mandated to be in the “Premium Efficiency” class of motors on December 19, 2010. And, still more classes of electric motors must have minimum efficiency levels once deemed as “energy-efficient.” The motor class concluded with a tour of Brithinee Electric’s new repair facility, primarily built for the expanding renewable energy industry, which will be completely operational in first quarter 2011.

Brithinee Electric is one of the largest sellers of Premium Efficiency Motors in California. The firm’s rewinding and remanufacturing processes are designed to maintain the original machine operating efficiency.

Motors are among the building blocks of modern life, consuming 66% of all industrial electric power. The first AC generating plant, Mill Creek #1, was first installed fifteen miles from Colton, in 1893. During most of the twentieth century, the basic design of motors has remained about the same. In the 1980s, microprocessor-based motor controls having high reliability came about, allowing for better and more efficient processes.

As these controls evolved, other problems arose, causing new types of failures in large motors and shortened motor life. For example, motors can run hotter when operated on Variable Frequency Drives, and that has a predictable effect on insulation life. Other issues arose, more difficult to analyze and solve, such as partial discharge caused by fast-switching transistors. These shortened the life of the windings and the bearings, thus acting as a deterrent to adopting the variable-frequency drives, and foregoing the energy savings they could produce.

Motors are actually complicated systems that are both mechanical and electrical in nature, and for which an understanding of the component materials is helpful. A problem in one area can frequently cause problems in another, such as a metal bearing being “etched” by partial discharges. Some of today’s new developments are using nanomaterials to coat magnet wire and improve insulating materials for windings; and ceramic materials for bearings, to isolate troublesome electrical discharge that can reduce the life of the motor.

Brithinee Electric is one of Southern California’s leading large electric motor/generator repair facilities, located in Colton, CA. They also make large motor control systems and sell new motors. Started in Colton 47 years ago, they have invested by adding a new 20,000 square foot facility to handle growing business, and larger wind generators that are serviced from as far away as Oregon and Texas. The cheapest way to reduce energy costs is by increasing efficiency; Brithinee Electric stands at the forefront of companies working on the greening of motors. Brithinee Electric offers regular motor classes for those who are interested in electric motors, or need continuing educational credits. Those interested in more information about training classes can visit [www.Brithinee.com](http://www.Brithinee.com).