



Sunday, September 10, 2006
8:00 AM – 12:00 Noon

**(T02) FUEL CELLS, THEIR FUELS,
THEIR ADVANTAGES,
DISADVANTAGES, AND THEIR
STATE OF DEVELOPMENT**

Tutorial Description

A number of fuel cell technologies will be described with emphasis on their possible use in telecom and utility applications. These include solid oxide fuel cells (SOFC), molten carbonate fuel cells (MCFC), phosphoric acid fuel cells (PAFC), alkaline fuel cells (AFC), proton exchange membrane fuel cells (PEMFC) and direct methanol fuel cells (DMFC) and the fuels that they use are included. These technologies operate at temperatures ranging from 1000 to 70 deg C and vary greatly in size and fuel requirements. Each type of fuel cell will be described in detail, along with their advantages and disadvantages in specific applications. System considerations such as available fuel supplies and their storage, electrical power characteristics, demonstrated life in

the specific application, system economics relative to other power options, safety and environmental issues will also be discussed.

Benefits of Attending

Understanding the latest fuel cell technologies.

Selecting the best fuel and fuel cell to use in your application

Learning about fuel cell system requirements and issues

Anticipating new technology developments

Exploring the most cost-effective approach for your application

Maximizing the return on your power system investment

Who Should Attend?

Developers and manufacturers of battery and generator products and systems.

System engineers working with standby, backup and uninterruptible power systems.

System integrators, value added resellers, and dealers of gensets, batteries and battery packs
Managers seeking new applications, technology advancements and opportunities

Manufacturers of battery monitoring and testing equipment

About the Presenter

Dr. Kathryn Bullock teaches a graduate engineering course in fuel cells, hydrogen production and storage, batteries and capacitors at Villanova University in greater Philadelphia, Pennsylvania. She is an active technical consultant with over 30 years of industrial experience in developing, manufacturing and applying electrochemical power sources in telecom, utility, industrial, automotive and portable power markets. She has contributed to the development of commercial lead-acid, nickel-hydrogen, and zinc-bromine batteries, primary lithium cells, and aluminum electrolytic capacitors. Previously she taught electrochemical courses at the University of Wisconsin and Northwestern University.