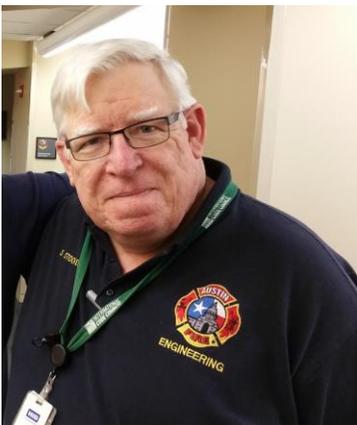




Seminar 2

Lithium Ion Battery Energy Storage Systems - Hazard Assessment and Fire Protection Issues

Li-BESS (Lithium ion Battery Energy Storage Systems) offer utilities and businesses the ability to store about 35% more electrical energy within the same building area when compared to conventional lead-acid batteries. It's a technology that has and is continuing to outpace the model codes. This seminar is a hazard assessment of Li-cells that are the primary component in Li-BESS. It's a summary of data from peer-review journals explaining fire and explosion propagation based on the chemistry of Li-cells, how SOC (State of Charge) influences combustion energy, deflagrations risks, and the combustion products toxicity. Included is a review of data summarizing automatic sprinkler and clean agent extinguishing system performance based on fire test data. Commercial and residential scale Li-BESS represents a new challenge to firefighters because it A) combines stored electrical energy with hazardous materials, B) the design of Li-BESS doesn't include a safety feature obtaining a zero energy state if a fire or fire & deflagration occurs, and C) it has its own vocabulary.



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Scott Stookey is Graduate Engineer assigned to the Hazardous Materials Section of the Austin Fire Department (AFD). He is a graduate of the Fire Protection & Safety Engineering Technology program at Oklahoma State University and has 30 years of experience dealing with the storage, use and handling of hazardous materials in industrial and commercial applications, including semiconductor manufacturing, intentional chemical processes, distilleries and whole body cryotherapy. Scott is one of the nine members of the ICC Fire Code Development Committee. AFD Hazardous Materials Engineers have been permitting utility and commercial Li-BESS for approximately three years based on the 2018 IFC and findings from peer-reviewed journals.

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