Researchers at the University of South Florida have developed a method and system of improving electrochemical power sources through controlled dispensing of materials necessary for energy production in an electrochemical cell.

Electrochemical power sources are the ideal choice for portable devices. Long term operation of these power sources is enhanced by the use of external devices which provide continuous or intermittent additions of chemicals needed for energy production. However, certain power sources are composed of materials that, over time, do not dissolve in an appropriate manner in order to allow a more precise level of control when producing energy.

USF Researchers have invented a method of controlling energy-producing chemical reactions in a galvanic electrochemical power source by positioning a dissolvable capsule containing a solid material inside the reaction chamber of the electrochemical power source. This capsule gradually releases material for energy production as and when needed for a set period of time. This results into a controlled, low cost and environmentally friendly method that enhances the energy/power output of the cell.

**ADVANTAGES:**

- Optimization of the concentration levels of chemicals involved in desired energy producing reactions
- Improved control of electrochemical power sources

**Enhanced Electrochemical Power Sources via Controlled Delivery of Reagents**

*Graph showing some of the degree of control in the encapsulation of solid sodium peroxide 2grs and its direct effect on the potential output of a cell*