Promising energy storage system: Rechargeable Seawater battery

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The development of the novel configuration of battery cells as in Li-Air and Li-Liquid has been catalyzed by combinations of multi-phase electrolyte/electrode components such as liquid/solid electrolytes and liquid/solid/liquid (or gas) electrodes. Herein, we gave attention to seawater as possible unlimited natural resource for a novel battery system. As the most abundant resource on the earth, seawater contains various chemical species, which were released from earth's crust and living organisms. The novel seawater-battery uses the seawater as cathode, a ceramic solid electrolyte to separate the cathode from the anode compartment, a TEGDME as electrolyte, and a hard carbon composite as anode. Upon operation, the seawater is circulated within the cathode compartment and provides sodium ions to charge the anode. During the discharge, this means during the energy supply, the sodium is released from the anode and reacts with water and oxygen from the seawater cathode to form sodium hydroxide.