

# Renewable Energy and Resources & Energy Materials and Fuel Cell Research

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Recently, the rapid development of the modern electronics gives rise to higher demands on the flexible and wearable energy resources<sup>1–3</sup>. It is urgently needed to develop energy devices which are lightweight, thin and flexible. In this regard, these years, many efforts have been made to integrate energy devices by combining solar cells and ESC or repeatedly rechargeable lithium-ion batteries<sup>4-7</sup>. Up to now, most of the work mainly focuses on the incorporation of a dye-sensitized solar cell (DSSC) with chemical battery power packs which based on different substrate materials and structure design. However, the sealing requirement of the DSSC devices made the fabrication very complex to prevent the electrolyte leakage and evaporation. In addition, the performance of the DSSC still could not meet the ideal requirement of energy storage devices, leading to a low overall energy conversion and storage efficiency. Here, we report an ultrathin flexible photo-charging power pack that integrates

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