ZSW engineers build lithium-ion battery able to last for 27 years

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Credit: ZSW

(Phys.org) —Officials at Germany's Centre for Solar Energy and Hydrogen Research Baden-Württemberg, (ZSW) have issued a press release describing improvements they've made to lithium-ion batteries. They claim their improvements allow a single battery to be recharged up to 10,000 times while still retaining 85 percent of its charging capacity. Such a battery, if used in an electric car, they note, would allow its

owner to recharge the battery every day for 27.4 years.

Besides the initial high cost of car batteries for electric vehicles, one of the main factors preventing further adoption of electric vehicles is the knowledge that the batteries will need to be replaced after just eight to ten years of use (and in some cases as few as just 3). Batteries that could last 25 or 30 years would likely outlive many of the other cars' parts, or the car itself, and if not too expensive, could finally give car buyers a compelling reason to switch from those that still rely on gasoline.

ZSW's announcement doesn't come as a surprise to most in the auto industry—the company published a paper in *Journal of Power Sources* last year describing ongoing research into electrode manufacturing process improvements that they claimed could dramatically improve the longevity of lithium-ion batteries. They noted then that electrode thickness changes, how much the electrodes compact during use and the type of conducting agent used in their construction when engineered in a new way, could help such batteries endure more recharging.

The newly redesigned batteries have approximately four times the density of current batteries (1,100 Watts per kilogram) and have been designed for use in storing power created by wind and solar farms and also in automotive vehicles.

ZSW doesn't say in its press release when they expect to deliver their new battery to manufacturers for use in actual cars or alternative storage devices. This likely means the company is still testing its concept to ensure that not only will the batteries hold up to claims of longevity but are safe in other ways as well. The company also noted that it has designed the new cell type itself as well as developing the manufacturing process used to make the battery. They've also made several prototype batteries in the 18650 format.

More information: www.zsw-bw.de/uploads/media/pi … hiumbatterien_EN.pdf