

# Research group develops commercially viable sodium batteries

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PUNE: Startup Rechargion Energy, an official spin-off firm of CSIR-National Chemical Laboratory (NCL), has developed a safer, sustainable and commercially viable alternative to lithium batteries to push forward India's electric mobility initiative. Researchers involved in the project have been working on a variety of energy storage technologies for more than a decade. They have developed a laboratory-scale prototype rechargeable battery with indigenous technology based on patented hard carbon material and sodium compounds.

The review article recently published in the journal, *Materials Today Sustainability* by Elsevier, discusses strategies to build commercialized sodium batteries.

The firm recently signed an MoU with the Automotive Research Association of India (ARAI). The minimum viable product with field demonstration will be ready by the year-end. The expected cost is Rs 11-12 per watt per hour with a battery life of 12-15 years. The operating temperature range is appropriate for harsh Indian summer or chilled winter, the researchers said.

Senior principal scientist, Manjusha Shelke, currently a Fullbright-Nehru fellow at Purdue University, US, said the

next-generation technology used sodium, which is abundantly available in the form of table salt and caustic soda. "Unlike lithium-ion battery, all the raw material are domestically available and much cheaper."

The novelty in the NCL-developed Sodium-ion batteries as compared to other laboratory work in the country is that the electrode material are patented by Rechargion Energy and the anode material used by the researchers is a polymer, making these batteries commercially viable.

Chief executive officer of Rechargion Energy and co-author of the published review article Vilas Shelke said, "The end-to-end manufacturing of commercial lithium-ion batteries in India is still a distant goal. There is huge import dependence on the cells, materials, and components. Moreover, several incidences of battery-related fire have rung the alarming bells."

Anticipating the potential, the Union Ministry of Heavy Industries, Indo-US Science and Technology Forum, Tata Power-backed Social Alpha have funded the startup to scale up the pilot-level manufacturing. The firm is also supported by ARAI, Venture Centre, Pune, and Rice University, Houston USA, in the pursuit of market-fit product.