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Charging It Up

After decades of importing lithium ion cells, Indian companies can lay hands on the technology

When space agency Isro developed in-house technology for lithium ion cell production, it wasn't for technology transfer to Indian companies to meet the fast growing consumer demand for lithium ion batteries. Because of their lightness, high energy density, reliability and long life cycle, Isro developed these batteries for satellite and launch vehicle applications. But now that both Isro and the government's premier R&D organisation CSIR have made important advances in Li-ion cell technology, it is being offered to the private sector, which could be a gamechanger in several industries.

India imported $150 million worth of Li-ion cells in 2017 for powering smartphones and laptops and other energy storage purposes. But it is electric vehicles that account for over 50% of global Li-ion demand today, growing from a 25% share in 2014. An Assocham-EY study has projected overall electricity demand from EVs in India at 79.9 gigawatt hours by 2020 and 69.6 terawatt hours by 2030. If solar powered, domestic Li-ion cell production can meet this energy demand, the benefits for India from reduction in carbon emissions to lower oil import bills will be immense.

The automobile sector contributes 7.1% of India's GDP and 22% of manufacturing GDP and EVs are a new growth opportunity. So far the high cost of Li-ion batteries and lack of charging infrastructure have hindered faster EV adoption. While economies of scale are bringing down Li-ion battery costs, India must push different models like public/household charging and battery swapping to ramp up charging infrastructure. Finally, Tesla is aiming for $100 per KWh Li-ion batteries while market prices in India are over twice that figure. The future will be shaped by whether our scientists and industry can bridge this gap.