

# The Importance of Lithium-Ion Battery Recycling on the Supply Chain of EV industry in Turkey

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## ABSTRACT

The transition to electric mobility is reshaping the automotive industry, and the supply chain for electric vehicles (EVs) is at the forefront of this transformation. One critical aspect of EVs is their energy storage system the Lithium-Ion battery (LIB). As the adoption of EVs accelerates, the sustainable management of these batteries becomes paramount. LIB recycling contributes to a circular economy by recovering valuable materials from used batteries. In Turkey, where EV adoption is growing, establishing robust recycling infrastructure is essential. Recycling reduces dependence on raw material imports, enhancing supply chain resilience. TOGG the first ten months of 2023, nearly 49,000 electric vehicles were sold in Türkiye, marking a staggering 890 percent increase from a year ago. Moreover, the annual production capacity of Aspilsan LIB facility is 220 MWh. Turkey reserve of LIB materials is 1.06, 0.8, 1.2, 2.7, and 3.7 million tons of Graphite, Lithium, Nickel, Cobalt, Copper respectively is significantly not enough to cover the planned EV manufacturing in the future. Turkey estimates that global cobalt demand will increase at a compound annual growth rate of between 7 % and 13 % from 2017 to 2030. As one of the largest industrial countries in Europe and with over 80 million population, Turkey seems to have high LIB waste. The annual imports of secondary batteries is over 10,000 tons. Which makes LIB recycling to recover battery materials in Turkey very promising. Exitcom Recycling Ltd has started recycling LIB with some support from Scientific and Technological Research Council of Türkiye (TÜBİTAK). Currently, the annual recycling capacity of LIB is 10,000 tons and expected to increase way further to cover the need of the supply chain in the country.

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