

OPPORTUNITIES FOR BATTERY RECYCLING IN AUSTRALIA

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ABSTRACT

In order to mitigate effects of climate change, a global transition to low carbon technologies is needed. According to the world resource institute, the energy sector contributed 72% of the global human made greenhouse emissions in 2020. To combat the rising CO₂ emissions from the transportation and electricity generation sectors, these sectors have been rapidly deploying and increasing market share of technologies such as electric vehicles (EVs) and energy storage systems (ESSs) in the past decade.

Whilst there is rapid growth of technology production to meet demand end of life management will become increasingly important. Battery waste is generally toxic and harmful to human health and the environment. However, waste batteries are also a valuable domestic mining resource containing concentrated valuable critical energy materials. The predicted demands for critical metals required to build new LIBs combined with the current methodology of landfill disposal represents not only an environmental issue, but also loss of a potential revenue source. Within Australia alone, utilising current generation recycling technology this could be as much as 3 billion dollars.

It is widely recognised the hazards and value of the waste LIBs can be well managed through transition from the current linear economy (Make – Use – Dispose) to a circular economy (Make – Use – Reuse – Recycle) to compliment primary resource utilisation through materials recovery from recovery technologies. This presentation will discuss the battery demand and trends, status of Australian battery recycling and discuss opportunities and challenges of LIB recycling and second life reuse.

Keywords: Lithium battery, recycling, materials recovery, second life,