A Case Study from India

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Why India needs to think of recycling?

National Mission for Transformative Mobility and Battery Storage + 175 GW RE target by 2022

Li-Ion BESS to increase from 2.9 GWH (2018) to 132 GWh (2030)

Annual recycling market = ~22-23 GWh

US$1 billion Opportunity

Adapted from JMK Research Report
Evolving landscape of handling BESS in India

Batteries (Management and Handling) Rules, 2001 (*looked at lead acid BESS*)

Hazardous Waste Management Rules 2008, MoEFCC

Hazardous and Other Waste Management Rules 2016, MoEFCC

DRAFT Battery Waste Management Rules 2020, MoEFCC (*includes all types of BESS*)

Bureau of Indian Standards (BIS) is working with UL (UL 1974: repurposing of BESS)
DRAFT Battery Waste Management Rules 2020

- Includes primary (non-rechargeable) and secondary (chargeable) batteries
- Mandatory for manufacturers and dealers to:
  - Collect used batteries against the new ones they sell
  - Safe transportation of the collected batteries to the recyclers (registered)
  - Dealers to
    - Register with state pollution control boards (PCB)
    - Issue invoice against buyback of old batteries (to maintain records and track) – to be submitted annually to state PCB
    - Includes targets for Extended Producer Responsibility (EPR)
- Batteries thus collected will be recycled only by the units that have the requisite environmentally sound managed (ESM) plants, to be inspected by MoEFCC
Under World Bank support, SECI launched a tender

- Tender is for 100 MW (AC)/160 MW (DC) solar with 40 MW/120 MWh BESS
- Prime objective of BESS is peak shaving
- 1 life cycle/day
- Degradation of 2% p.a. and no lower than 80% at any point in time
- Expected BESS replacement: 10th year

- The bid documents refer to the last issued guidelines on this – New Hazardous Waste Management Rules 2016, issued by MoEFCC
Recycling and Repurposing: What is required to make it attractive?

• Back-to-back tie ups between manufacturers and recyclers is already taking place (Extraction of rare metals like cobalt, nickel and lithium makes business sense for the manufacturers).

• Unattractive business case for establishing BESS recycling units as of now (but initial volumes for recycling are expected from rejected batteries; consumer electronics; telecom; B2B logistics (e-commerce websites like Amazon) (expected to pick from 2022))

• Introduction of well-defined regulatory and policy guidelines (can include incentives to the recyclers in the initial phase; battery swapping for reuse and reclaiming)

• Effective and prompt implementation of such guidelines/rules

• Wide collection network
Thank You!

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