CIRCO

Exponential market growth for Energy Storage systems

Due to the rapidly increasing demand for batteries, both for EVs and for ESS, the need for raw materials required for this will increase significantly in the coming years. As a result, a shortage of the critical raw materials cobalt, lithium, nickel and manganese is expected until new generations of batteries are developed. Efficiently closing the cycle will therefore be necessary to recover all raw materials, scarce or not, at a high quality level and to reuse them in the battery chain. And preferably within the EU itself. To achieve this, the industry must invest more in new recycling technologies and installations, as well as in Refurbish and Reuse.

EU Regulation – stimulating circularity

The EU Battery Directive, in force since 2023, provides for stricter measures for the entire life cycle of the battery, from raw material to end of life. By 2030, 70% of the volume of discarded batteries must be recycled, and 80-90% of the existing lithium must be recycled. And recycled materials are required to be used in new batteries.

Circular Business and Design – Energy Storage Systems

Focus on Lifespan Extension

Dismantled EV batteries still have approximately 80% of their original capacity, making them no longer suitable for EVs. If these are reused as stationary ESS, the lifespan can be extended from approximately 10 to 20 years. This reduces the need for scarce raw materials and recycling capacity. Second-hand EV batteries can in principle even cover the demand for network batteries. The condition is that they are technically suitable and designed for reuse. And that they can be repaired, for example by replacing broken cells.

Circular Business opportunities

To organize the circular economy for batteries, it is necessary to use batteries as efficiently and for as long as possible, even if they are no longer suitable for their primary application. The fewer adjustments required for second use in a new application, including Repair and Refurbish, the better. Ultimately, recycling is the least economically attractive option. Challenges for new business cases revolve around ownership, safety and the effective organization of the value chain. To create a sound business case for Reuse, solutions must be found for the costs of the required Diagnosis, Repair, Refurbish and adjustments to a new application.

Leading by Example

A successful example of Refurbishment in the Netherlands is the repair of bicycle and scooter batteries by NOWOS. Examples of Repurposing include the use of lead acid batteries for stationary storage by Battery-As-A-Service. And by BAM, which has provided the Johan Cruijff ArenA with a super battery made from second-hand EV batteries.

CIRCO Track - Chain cooperation

Together we look for circular opportunities to avoid value destruction and waste in the value chain. How can you use these opportunities? What does this mean for your products, services and business model? And how do you work together with others in the value chain?

For Whom?

This CIRCO Track is intended to involve as many stakeholder in the ESS value chain as possible. Production, OEM, Rental en use, as well as Repair, Refurbish, Repurpose and Recycling parties.

Results:

New circular propositions for your own organization and chain collaboration. Developed into a concrete plan for implementation.

June 2025

CIRCO Track Program

- 3 workshop days
- + Interaction and Cooperation
- + Self work and Trainer Calls
- + Online working and e-learning environment
- + Guidance by experienced CIRCO Trainers

Investment

- + participation: 2 people per organization
- + total time investment: approx. 30 hours per person.

More information? Click <u>here</u> Register immediately? Click <u>here</u>

Dates

2nd of June (half a day) 11th of June (digital meeting, 1,5hr) 16th of June (full day) 30th of June (half a day)

Partners



