

OST
Ostschweizer
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CircuBAT – Batteriespeicher mit 2nd-Life-Batterien

brenet ForschungsLunch #3

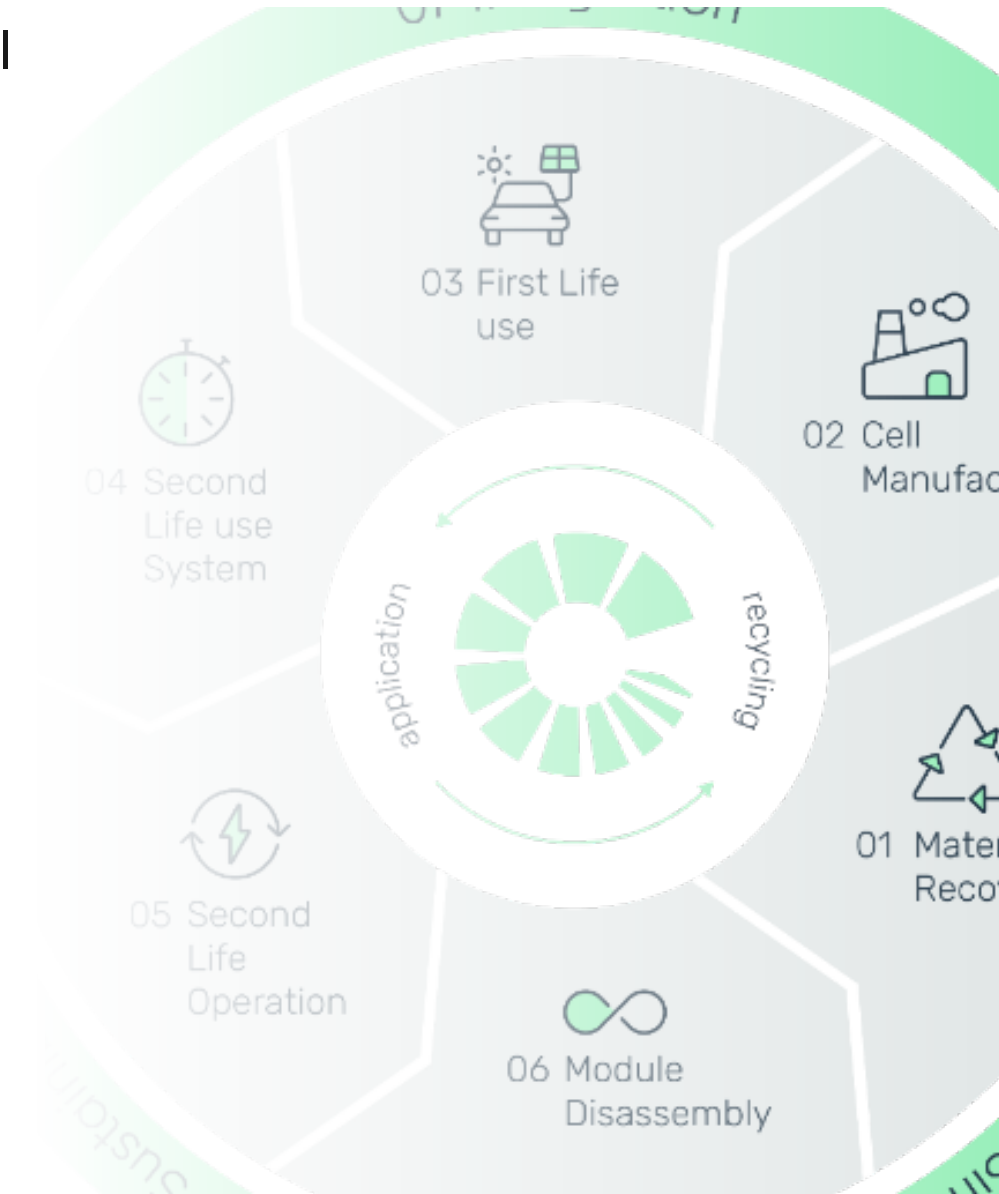
Nigsch Simon
30. Oktober 2025

CircuBAT - Project

We want to advance the **technical** and **economical** potential of a **circular economy** for **automotive** lithium-ion batteries. The CircuBAT-project connects the major stakeholders along the **complete lifecycle** of lithium-ion batteries in Switzerland:

- **24 Swiss industry partners**
- **11 Swiss research groups from 7 research institutes**
- **7 subprojects**
- **1 circular economy model**

Project period: 2022 - 2025



2nd Life Battery Storage System

Project Goal

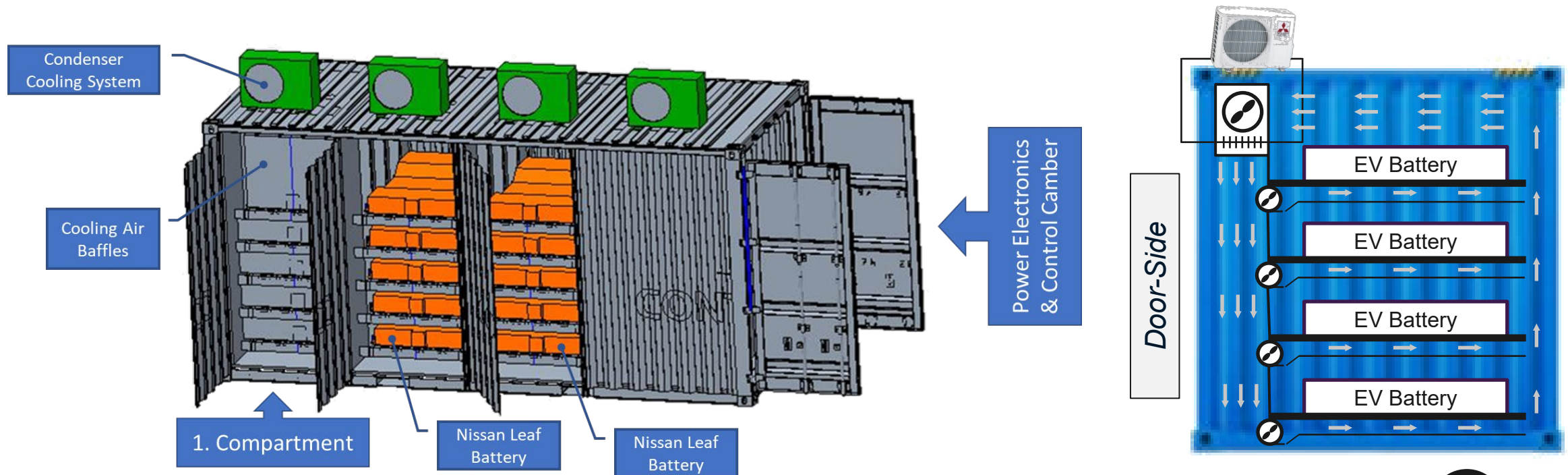
- Utilize complete second-life **EV batteries** for stationary energy storage
- **Extend battery life** cycle and support **renewable integration**
- **Modular** and **scalable** system for research and industrial use



2nd Life Battery Storage System – Container Design

Thermal Design

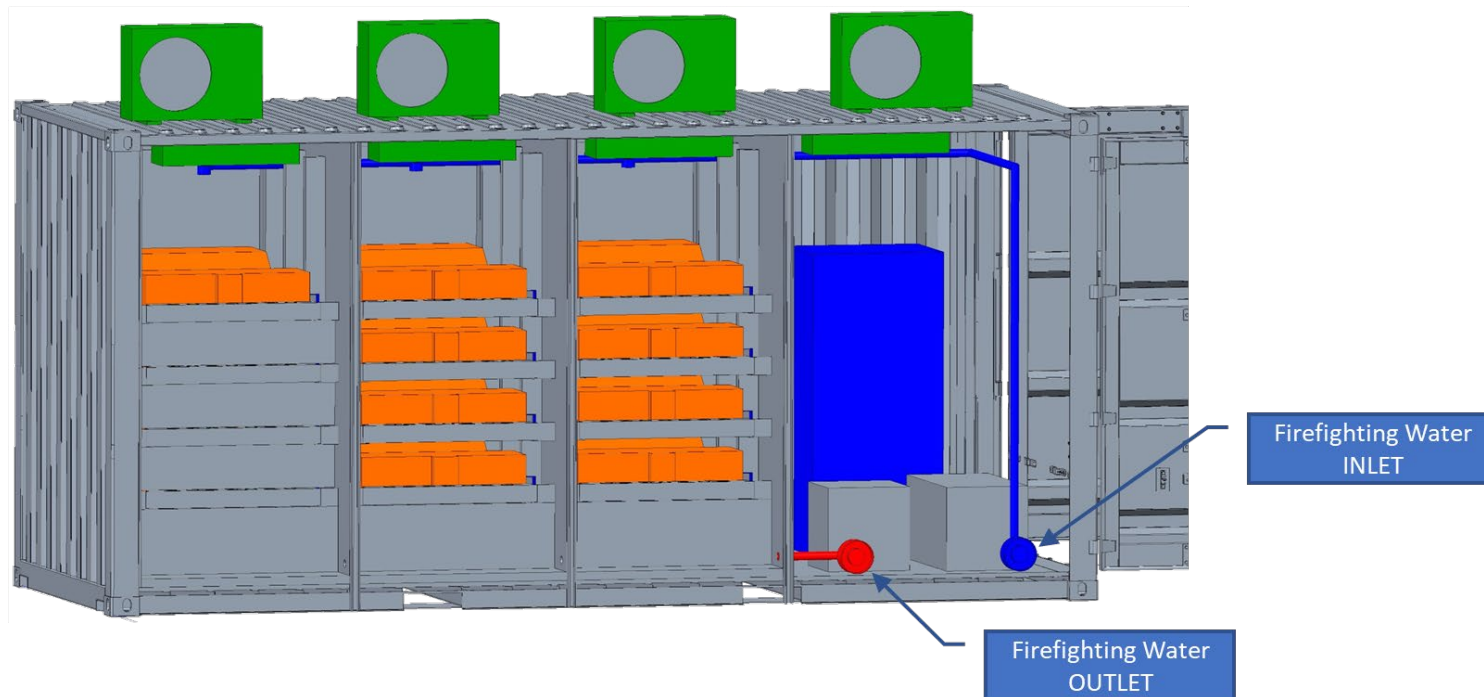
- Forced-air cooling with ceiling-mounted air coolers and circulation fans
- Thermal insulation to reduce external heat exchange
- Active control to maintain uniform temperature ($<30\text{ }^{\circ}\text{C}$) and prolong battery life



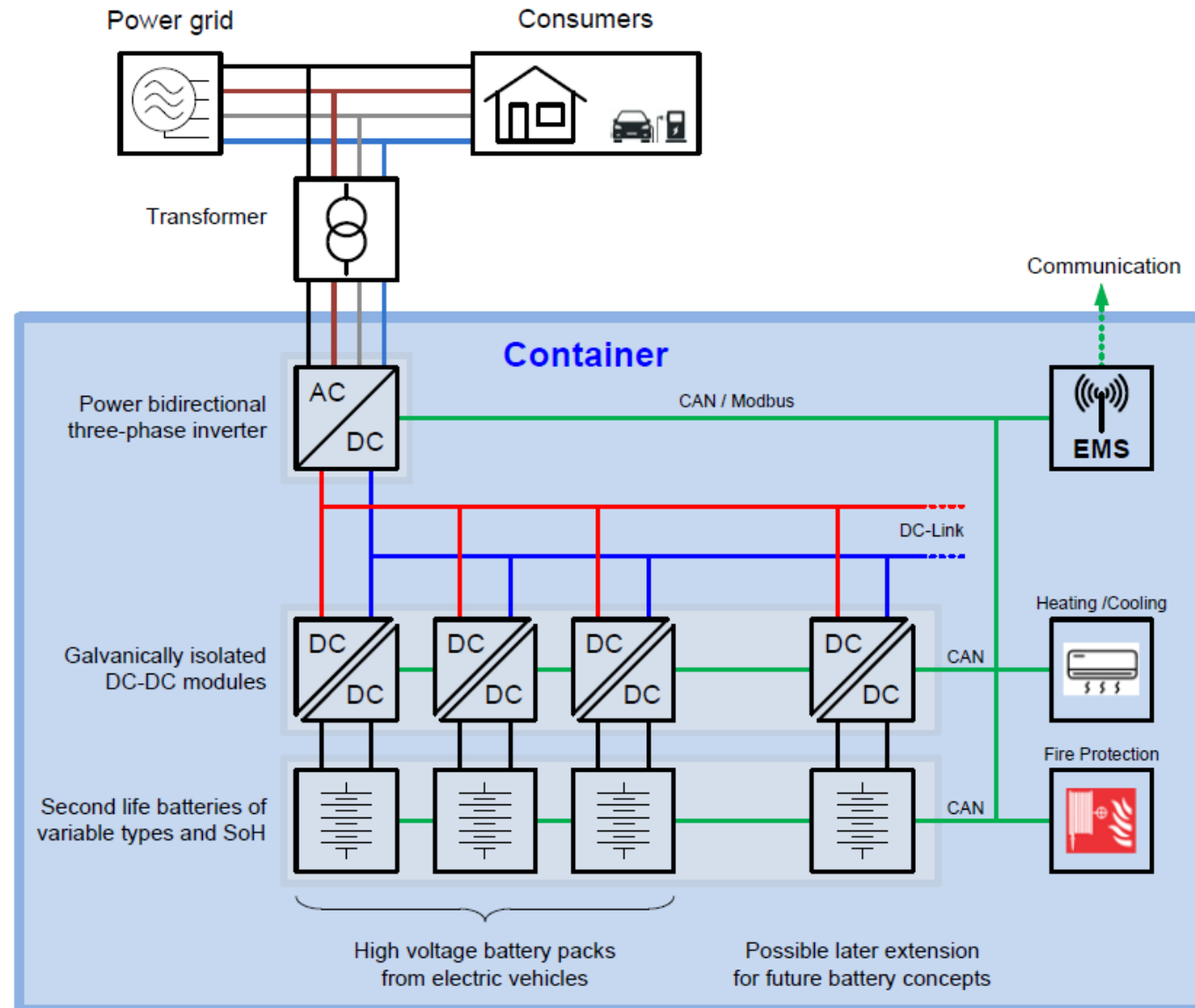
2nd Life Battery Storage System – Container Design

Safety Measures

- Compartmentalized design prevents fire propagation
- Independent smoke detection and fire-flooding system (water-based)
- Galvanic isolation and automatic battery disconnection on fault
- Compliance with **IEC 62485-1** and **IEEE 2030.2.1** standards



2nd Life Battery Storage System – System Design



2nd Life Battery Storage System – DC-DC-Converter

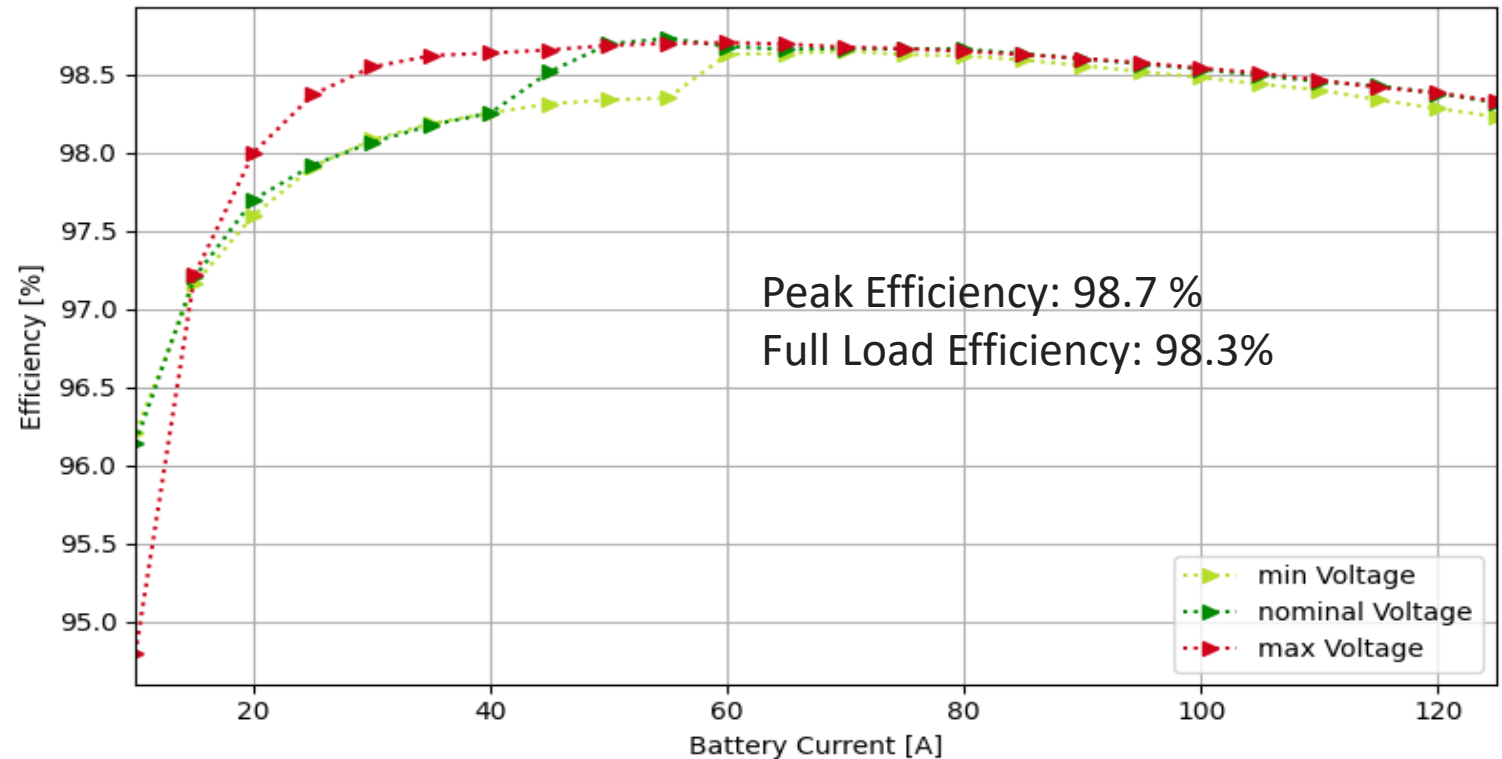
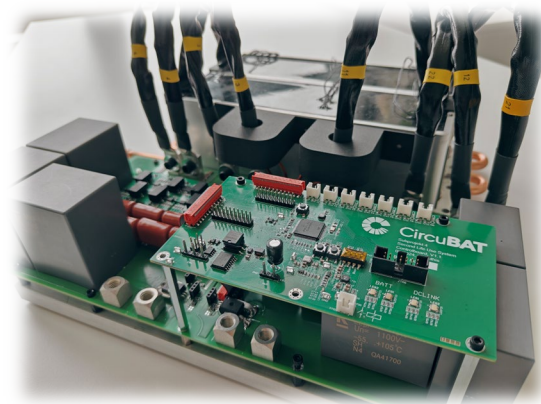
Galv. Isolated DC-DC Converter

Power: 50 kW

DC-Link: 720 V – 880 V

Battery-Voltage: 150 V – 900 V

Current: 0-125 A



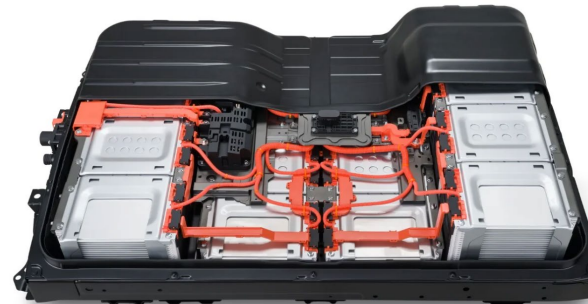
Nissan Leaf Battery

Type: NCM 523

Capacity: 40 kWh (total pack)

Voltage: 307 V – 403 V (total pack)

Load Current up to 1C (115 A)



CircuBAT – Conference 2025

13. November 2025

- Final Public Conference
- 1.30 pm – 7.30 pm
- The event will be held in German.
- The participation is free of costs. The registration is mandatory.

14. November 2025

- Scientific Conference / Technology update with international speakers
- 9 am – 7.30 pm
- The event will be held in English.
- CHF 290.– regular registration fee

<https://circubat.ch/circubat-2025-conference/>



The poster for CircuBAT2025 features a dark blue background with a green, glowing, wavy pattern at the top. The title 'CircuBAT2025' is in white, with a green circular logo to its left. Below the title, the main text 'International Conference on Circular Economy for Lithium-ion Batteries' is in white. The date and time 'November 14, 2025 | 9 am – 7.30 pm' and location 'BERNEXPO, Festhalle Bern, Switzerland' are listed. A paragraph describes the conference's focus on circular economy solutions for automotive lithium-ion batteries. Sponsors include INDRIVETEC, STIFTUNG AUTO RECYCLING SCHWEIZ, and a logo with 'r c s'. Further information is available at circubat.ch, accompanied by a QR code. At the bottom, logos for Bern University of Applied Sciences, Flagship supported by (Schweizerische Eidgenossenschaft, Confédération suisse, Confederaziun Svizra, Confederaziun Svizra, Swiss Confederation, Innovation - Sales Innovation Agency), and Bern Economic Development Agency are shown.

CircuBAT2025

**International Conference
on Circular Economy
for Lithium-ion Batteries**

November 14, 2025 | 9 am – 7.30 pm
BERNEXPO, Festhalle Bern, Switzerland

Join us at CircuBAT2025 to explore the forefront of circular economy solutions for automotive lithium-ion batteries. The conference will showcase the findings from the Swiss CircuBAT project, offering valuable insights into technological advancements and scientific developments in the field.

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Further information:
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Vielen Dank



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