Online Webinar: "Life Cycle Costing of Batteries, challenges and outlooks" on January 24, 2024, from 3:00 PM to 5:00 PM CEST.

The European Union (EU) expects global demand for batteries to increase 14-fold by 2030 compared to 2018. According to the requirements from Brussels, batteries used in the EU must meet several criteria, such as high charge capacity, durability, and recyclability – i.e., the ability to be reintroduced into the material cycle at the end of their useful life. Moreover, they must be produced sustainably and from materials extracted in compliance with social and environmental standards.

Techno-economic simulation tools, cost-benefit analysis, and business model innovation are needed to assess advanced battery technologies. The EU-funded TwinVECTOR project will establish a center of excellence at the Tomas Bata University in Zlín (TBU), Czechia, focusing on next-generation battery sustainable design, energy business models, and sustainability assessments. The first event of the project "**Life Cycle Costing of Batteries, challenges and outlooks"** is part of a series of 6 webinars. Each webinar will consist of two presentations on the topic of sustainability assessment and batteries, covering different relevant use cases. These online webinars are carried out in cooperation with StoRIES, EERA Joint Program Energy Storage or POLiS. The webinars will be open to anybody and provide sufficient space for discussion.

Agenda

15:00 Welcome and Introduction

15:10 Prof. Jens Peters (University of Alcalá) – "Assessing costs and economic potential of lithium and post-lithium batteries"

15:35 Discussion

16:00 Dr. Manuel Baumann (Karlsruhe Institute of Technology) - "Use Cases for life cycle Costing of batteries – from screening to application"

16:25 Discussion

16:50 Wrap-up

17:00 End of Webinar

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Presentation 1: "Assessing costs and economic potential of lithium and post-lithium batteries" by Jens Peters

Abstract

Sodium-ion batteries (SIBs) are a recent development being promoted repeatedly as an economically promising alternative to lithium-ion batteries (LIBs). However, while SIB requires less expensive materials, the materials are only one part of the equation. Whether a new battery has the potential to excel current lithium-ion batteries economically depends on many aspects that need to be considered for an economic assessment. The presentation shows a typical cost assessment on the battery cell level with a detailed breakdown of components and explores the relevance of key battery parameters for a favorable overall outcome. It therefore provides insights into the challenges and pitfalls that an economic assessment of energy storage might bring and the most important cost drivers for lithium and post-lithium batteries.

Biography

Jens is an associate professor at the Department of Economics, University of Alcalá, Madrid. His research activity comprises the prospective sustainability assessment of emerging battery technologies with a focus on resources and recycling, but also policy analyses in the field of low-emission vehicles and urban mobility. In parallel, he is working for the Joint Research Centre of the European Commission on the development of future carbon footprint rules for batteries.

Presentation 2: "Use Cases for life cycle Costing of batteries – from screening to application" by Manuel Baumann, Hüseyin Ersoy

Abstract

Battery storage systems (BESS) are considered as an option that allows it to integrate higher shares of RES on multiple grid levels to enable a decarbonized electricity system. There are several technologies available, and the choice of the best energy storage technology is based on the requirements of a certain application field, its technology readiness level, and stakeholder preferences. The presentation will provide use cases for the techno-economic assessment of different battery technologies. First, a cathode active material cost screening for sodium and lithium-ion batteries is presented. Then, a work on the life cycle cost of different battery technologies is provided, wherein also preferences of stakeholders are also considered. Finally, different methodological challenges are discussed and contrasted against the actual cost of the systems.

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Biography

Manuel is a researcher at the Institute for Technology Assessment and Systems Analysis of the Karlsruhe Institute of Technology. He is researcher in the group “Research for Sustainable Energy Technologies – RESET” and coordinator of the sub-program 6 “Energy storage: Techno-economics and sustainability” of the Joint Program Energy Storage of the European Energy Research Alliance (EERA). His research interests are technology assessment, decision-making methods, techno-economics, and life cycle assessment of energy storage technologies.

Organizing team:

Merve Erakca (KIT), Jens Buchgeister (KIT), Hüseyin Ersoy (KIT), Manuel Baumann (KIT), Viera Pechancová (TBU)

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