Modeling of the industry sector and material efficiency

Universität Stuttgart
IER Institut für Energiewirtschaft und Rationelle Energieanwendung

LULEÅ UNIVERSITY OF TECHNOLOGY

VTT

The Energy Technology Systems Analysis Program (ETSAP) is one of the longest running Technology Collaboration Programs (TCP) of the International Energy Agency (IEA). The TCP functions as a collective of member country and invited teams that actively cooperate to establish, maintain, and expand open-source solutions for energy scenario modelling.

This project aims to support the TCP ETSAP by contributing to the modelling of material efficiency strategies for industrial sector in energy systems.

The research consortium is constituted by the Institute of Energy Economics and Rational Energy Use (IER), the VTT Technical Research Centre of Finland and the Luleå University of Technology in Sweden. Together, a contribution to the global energy transition shall be created.

With its focus on the most impactful emerging trends in the areas of future industry technologies and material efficiency measures, **this workshop series aims** to contribute to advancing the modeling of the circular economy in the future industry sector. Subsequently, the contributions to the workshop will be subjected to open discussion, with a view to identifying further research needs and questions.

The focus areas of the three workshops are:

- Contribution of circular economy and material efficiency to the decarbonization in the global energy system
- Future of critical raw materials: Security of Supply for Lithium-ion batteries
- Transformation pathways in the industrial sector

26th Nov 2025 (in combination with ETSAP WS)

Transformation pathways in the industrial sector

Place: Innopoli 1, Tekniikantie 12, Espoo, Finland + Online-Streaming
Hosted by VTT Technical Research Centre of Finland Ltd.

Topic motivation:

Achieving carbon neutrality presents significant challenges within the industrial sector, largely due to complex value chains and a heavy reliance on fossil fuels. This workshop explores transformative pathways for energy-intensive industries, detailing strategies for emission-free production essential to reaching the well-below 2°C goal.

Program:

Time	Local time, EET
09:00	Introduction – Tiina Koljonen, VTT
09:15	Towards fossil-free industry: Case of Finland, Antti Lehtilä, VTT, Finland
09:45	Efficient reliability through intelligent system integration, Fabian Shipfer, IEA Bioenergy Task 44, IIASA, Austria
10:15	From Now to Next: Rethinking Nordic Cross-border Supply Chains amid a Green Industrial Shift - Insights from the Man0EUvre project, Vivek K. Yadav and Anna Krook-Riekkola, LTU, Sweden
10:45	Coffee Break
11:00	Investment needs in CCU and CCS in industry – which way to proceed? Kati Koponen, VTT, Finland
11:30	CO_2 reduction in the cement industry: the role of alternative building materials and CCS- IER, Markus Blesl, IER, Germany
12:00	Discussion
12:30	Wrap-up of the results

Moderators:

Ms. Tiina Koljonen, VTT
Prof. Dr. Markus Blesl, IER
Dr. Anna Krook-Riekkola, LTU

Contact:

Tiina Koljonen;
tiina.koljonen@vtt.fi