Follow-ETSAP Workshop Series
2024/25

Modeling a global zero-emission industry sector

Universität Stuttgart
IER Institut für Energiewirtschaft und Rationelle Energieanwendung

JÜLICH
Forschungszentrum

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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 modeling.

The **Follow-ETSAP** project aims to support the TCP ETSAP by contributing to the modeling needs of emission-free energy sources for the industry sector. A particular emphasis is placed on the competition of emission-free technologies against the background of material efficiency and the concept of circular economy. In addition to that, the role of new industries is analyzed. The findings are modeled with the ETSAP TIAM energy system model, which will be applied to advance the understanding of the interrelationships between the aforementioned factors.

The Follow-ETSAP research consortium is constituted by the Institute of Energy Economics and Rational Energy Use (IER), the Jülich Systems Analysis (IEK-3) at the Research Center Jülich and the Chair of Renewable and Sustainable Energy Systems at Technical University of Munich (TUM-ENS). Together, a contribution to the global energy transition shall be created.

With its focus on the most impactful emerging trends in the areas of automotive, agriculture and material efficiency, **this workshop series aims** to contribute to advancing the modeling of the future global zero-emission 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:

- Automotive manufacturing of the future – mobility concepts and energy demand
- Future energy demands of the agricultural sector – impact of technological innovation and dietary patterns
- Contribution of material efficiency and circular economy to the decarbonization of the global energy system

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5th June 2025

Contribution of Circular Economy and Material Efficiency in the global Energy System

Place: IER – University of Stuttgart, Heßbrühlstraße 49A, 70565 Stuttgart
+ Online-Streaming
Registration link: https://terminplaner.dfn.de/WS-Series-Follow-ETSAP-IER
Password: Follow-ETSAP

Topics:

Material Demand | Material Efficiency | Green Hydrogen | Chemical industry |
| Circular Economy | Industry Supply Chain | Critical Minerals | Battery Demand

Research question:

What is the materials demand in the future and how can it be affected by material efficiency and circular economy?

Indicative program:

Time	
13:30	Introduction - Prof. Markus Blesl, IER
14:00	Global demands of selected minerals and metals in clean energy transition to meet the 1.5 °C target - Tiina Koljonen (VTT, Finland)
14:30	Decarbonization of industries – Will new industrial supply-chains alter where industries are located? - Anna Krook-Riekkola (Luleå University of Technology, Sweden)
15:00	Circular Economy and Material Efficiency Potentials for Bulk Materials in Buildings and Vehicles – Insights from the EU CIRCOMOD – Stefan Pauliuk, University of Freiburg
15:30	Coffee Break
16:00	Investigation of material efficiency and circular economy potentials for the chemical industry in order to achieve the net zero target – IER
16:30	Keynote – Prof. Markus Blesl, IER
17:00	Discussion
18:00	Wrap-up of the results

Moderators:

Prof. Dr. Markus Blesl, IER
Prof. Dr. Thomas Hamacher, TUM-ENS
Prof. Dr. Heidi Heinrichs, Jülich System Analysis

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