March 12, 2025
BioTheRoS Expert Workshop

BEST
Bioenergy and
Sustainable Technologies

ADVANCED MOTOR FUELS
IEA-AMF
Technology Collaboration Programme on
Advanced Motor Fuels

IEA Advanced Motor Fuels

Task 63 and Task 66 on SAF research

Presenter Name
Doris Matschegg (BEST)

Agenda

- IEA Advanced Motor Fuels TCP
- Task 63 – Sustainable Aviation Fuels
- Task 66 – Recent progress in SAF research

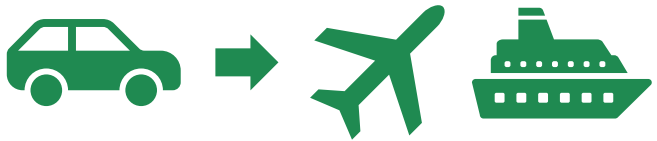
Agenda

- **IEA Advanced Motor Fuels TCP**
- Task 63 – Sustainable Aviation Fuels
- Task 66 – Recent progress in SAF research

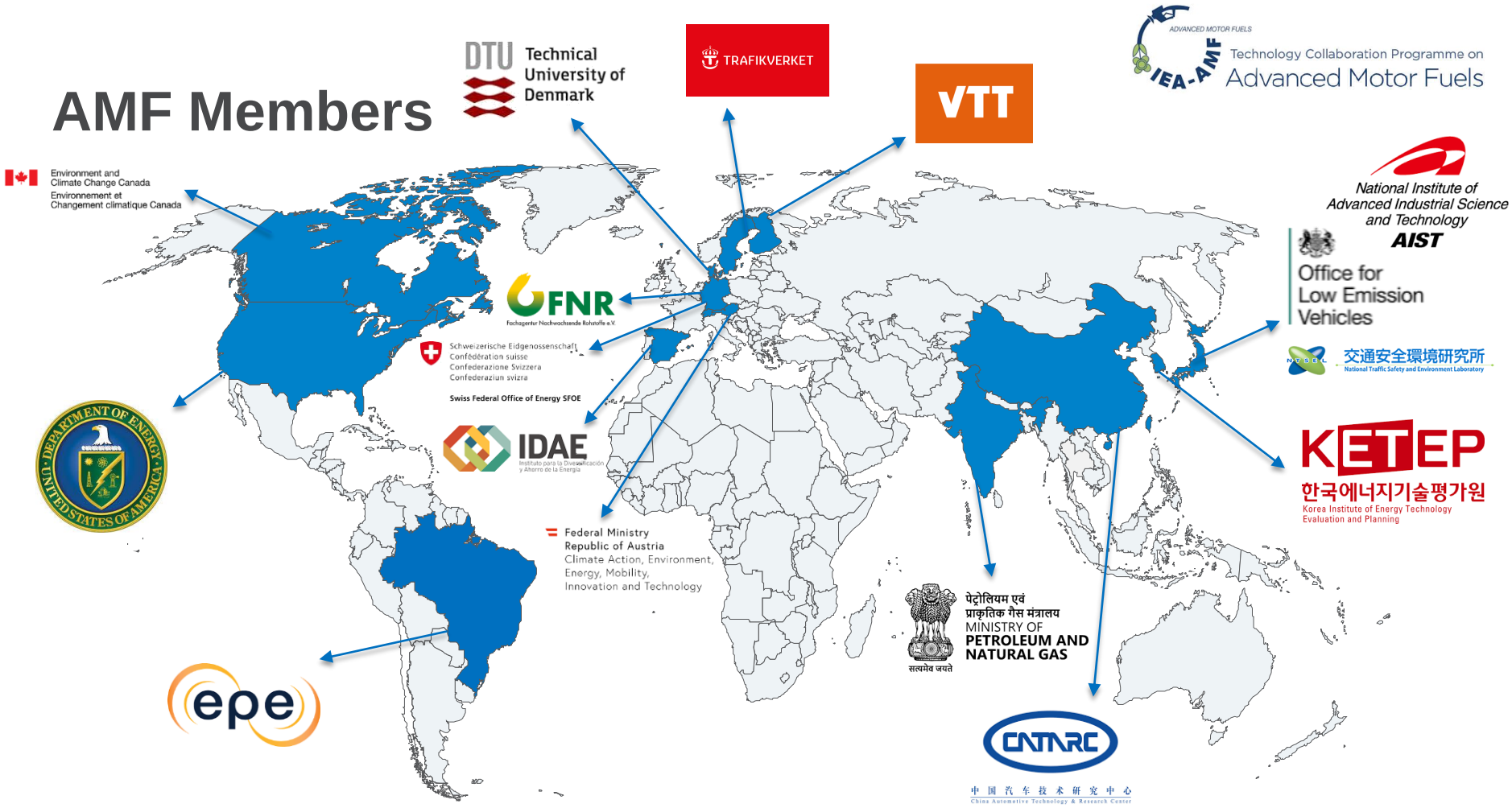
IEA AMF TCP

- International network that:
  - Helps the transport sector to reduce its impact on the environment.
  - Provides unbiased information on sustainable fuels and related engines.
  - Fosters collaborative research, development and deployment of advanced motor fuels.

- The strategic work plan covers fuels for on-road, long-haul, heavy-duty and non-road applications.
  - Due to ongoing electrification of the drivetrain, shift to non-road applications
  - These include sustainable marine and aviation fuels



AMF Members


DTU Technical University of Denmark
TRAFIKVERKET
VTT
ADVANCED MOTOR FUELS
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Environment and Climate Change Canada
Environnement et Changement climatique Canada
National Institute of Advanced Industrial Science and Technology
AIST
Office for Low Emission Vehicles
FNR
Fachagentur Nachwachsende Rohstoffe e.V.
Schweizerische Eidgenossenschaft
Confédération suisse
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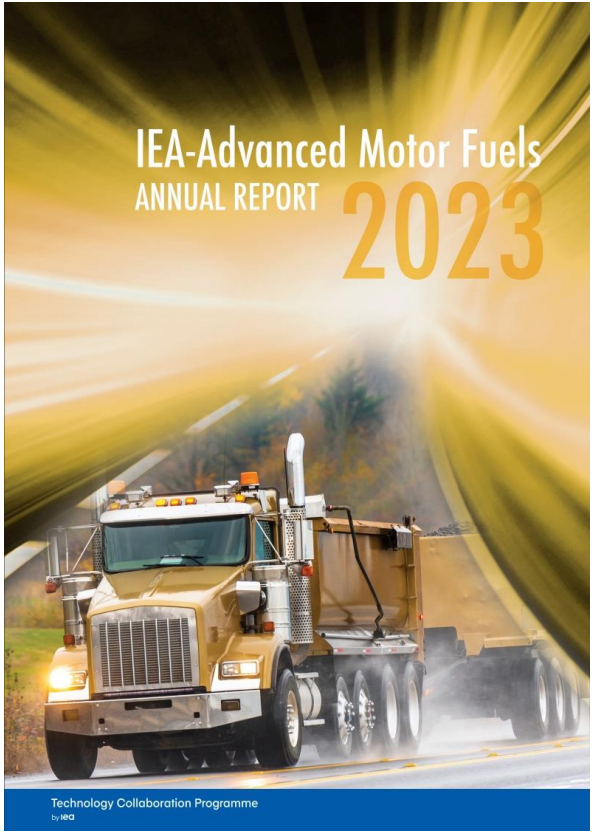
Confederaziun svizra
Swiss Federal Office of Energy SFOE
交通安全環境研究所
National Traffic Safety and Environment Laboratory
IDAE
Instituto para la Diversificación y Ahorro de la Energía
KETEP
한국에너지기술평가원
Korea Institute of Energy Technology Evaluation and Planning
Federal Ministry
Republic of Austria
Climate Action, Environment, Energy, Mobility, Innovation and Technology
पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय
MINISTRY OF PETROLEUM AND NATURAL GAS
सत्यमेव जयते
epe
CATARC
中国汽车技术研究中心
China Automotive Technology & Research Center

AMF Dissemination activities

- Fuel information
  - Focus on end-use aspects
- Annual reports
  - Status and outlook of advanced motor fuels in member countries
- Country reports
- Special reports (e.g. 40 years of AMF)
- Project/Task reports incl. key messages
- Newsletters and brochures
- Website: https://www.iea-amf.org/



Agenda

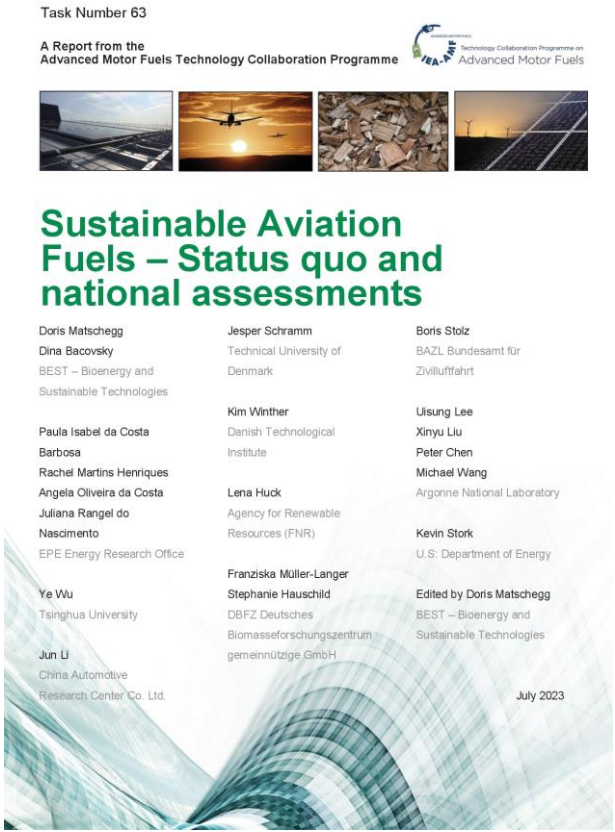
- IEA Advanced Motor Fuels TCP
- **Task 63 – Sustainable Aviation Fuels**
- Task 66 – Recent progress in SAF research

Task 63

Sustainable Aviation Fuels (SAF)

- First project within AMF focusing on aviation fuels

- November 2021 – April 2023 (18 months)
- Task Manager BEST, Austria
- Task sharing participants
  - Austria, Brazil, China, Denmark, Germany, Switzerland, USA
- Final report and key messages: https://iea-amf.org/content/projects/map_projects/63



Technology Collaboration Programme on
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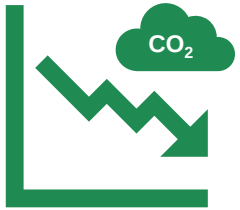
Task 63

Project objectives

- Reducing GHG emissions from the aviation sector with SAF
  - Potential remains largely untapped since SAF represent only about 1% of total jet fuel demand
- Laying the foundation for collaborative RD&D on SAF
  - Identifying stakeholders and experts
  - Assessing the national situation of the participants
  - Facilitating information exchange on main challenges in taking up SAF



Task 63

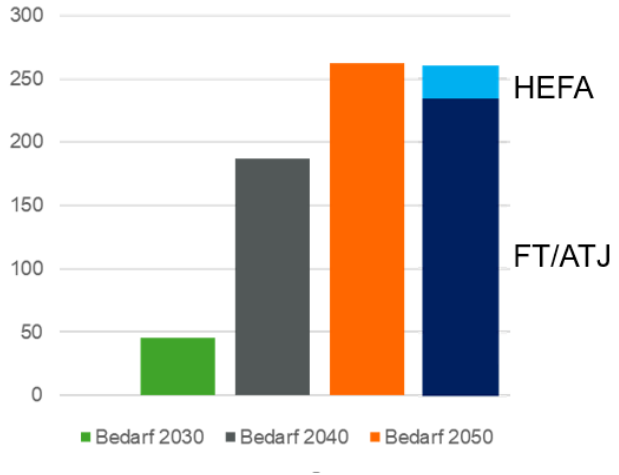
Project activities

- Overview of the international status quo of SAF development
  - Production facilities, legal framework, technology pathways
- National assessments
  - Identify actors and supply chains, national strengths and potentials
  - Available for Austria, Brazil, Denmark, Germany, Switzerland and USA
- Workshops and online seminars
- Identification of implementation barriers
- Deriving key messages and policy recommendations
- Final project report and key messages

Task 63

Key findings I

- Main barriers for implementing SAF were confirmed within the Task:
  - Sustainable feedstock availability
  - Comparably high production costs
  - A lack of clear international regulations and alignment between them
- Biogenic SAF is essential for decarbonizing the aviation sector, especially in the short-term.
  - HEFA is currently the main pathway, but until 2030 also Gasification-FT and ATJ will produce significant amounts.
  - PtL will take longer to be fully commercial. However, all SAF technology pathways are needed to achieve the targets of the sector.

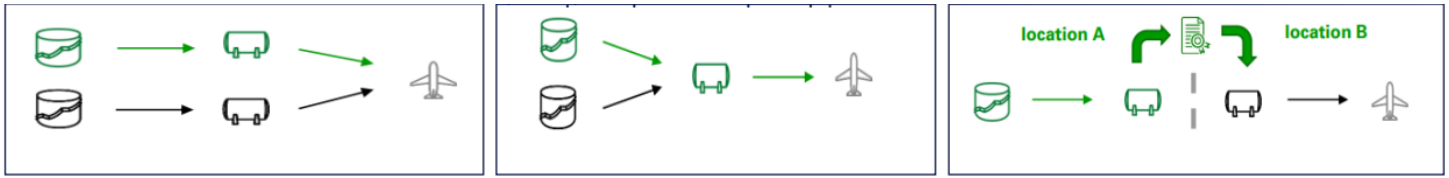


Demand for biogenic SAF in Austria [million liters]
Considering available feedstock from Austria

Task 63

Key findings II

- Even though the EU share a common framework, strategies among Member States vary (e.g. strong focus on e-fuels in Germany and Denmark)
- SAF blending is not a technological issue (even in case of multi-blending), but an economical and an administrative one.
  - There are three ways for SAF delivery – segregated delivery, mass balance and book & claim. Whereas book & claim is highly demanded by stakeholders, it is not reducing regional non-CO_2 effects.

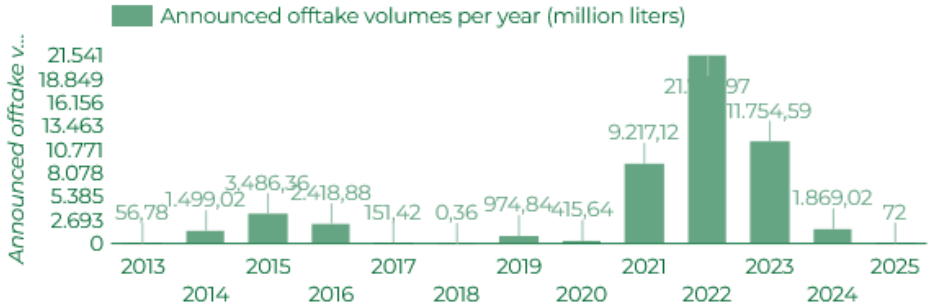


Segregation **Mass balance** **Book & Claim**

Task 63

Key findings III

- SAF availability is very limited at the moment, but e.g. the EU and USA have very ambitious plans for capacity increase (ReFuelEU Aviation, US Aviation Climate Goal).
  - Worldwide there is only a limited amount of production facilities in operation, with Neste as market leader. In the USA the production forecast for 2027 is about 60 times higher compared to 2022.
- Scaling-up SAF capacities require huge investments and risk sharing among stakeholders.
  - Offtake agreements are one possibility for airlines to support SAF producers while securing their SAF supply.



https://www.icao.int/environmental-protection/GFAAF/Pages/Offtake-Agreements.aspx

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Task 66

Recent progress in SAF research

- Follow-up Task on Sustainable Aviation Fuels

- October 2024 – September 2027 (3 years)
- Task Manager BEST, Austria
- Task sharing participants
  - Austria, Brazil, China, Denmark, Germany, Spain, Switzerland, USA

Task 66

Project acticities

- Build on and expand stakeholder network
- Facilitate information exchange between them
  - Numerous research projects on SAF are being carried out worldwide.
- Organize a series of 10 online seminars over 3 years
- Derive national policy recommendations

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Task 66

Outline online seminars

Topic	Lead	Time period
Drop-in unblended (100%) SAF	BEST, AT	Q2 2025
Process parameters and properties	BEST, AT	Q2 2025
Monitoring deployment	DBFZ, GE	Q3 2025
Engine technology in aircraft	DTI, DK	Q4 2025
Policy recommendations	EPE, BR	Q1 2026

The online seminars are free to join, registration will be available on the Task website: https://iea-amf.org/content/events/web_seminars/webinars_task66

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