

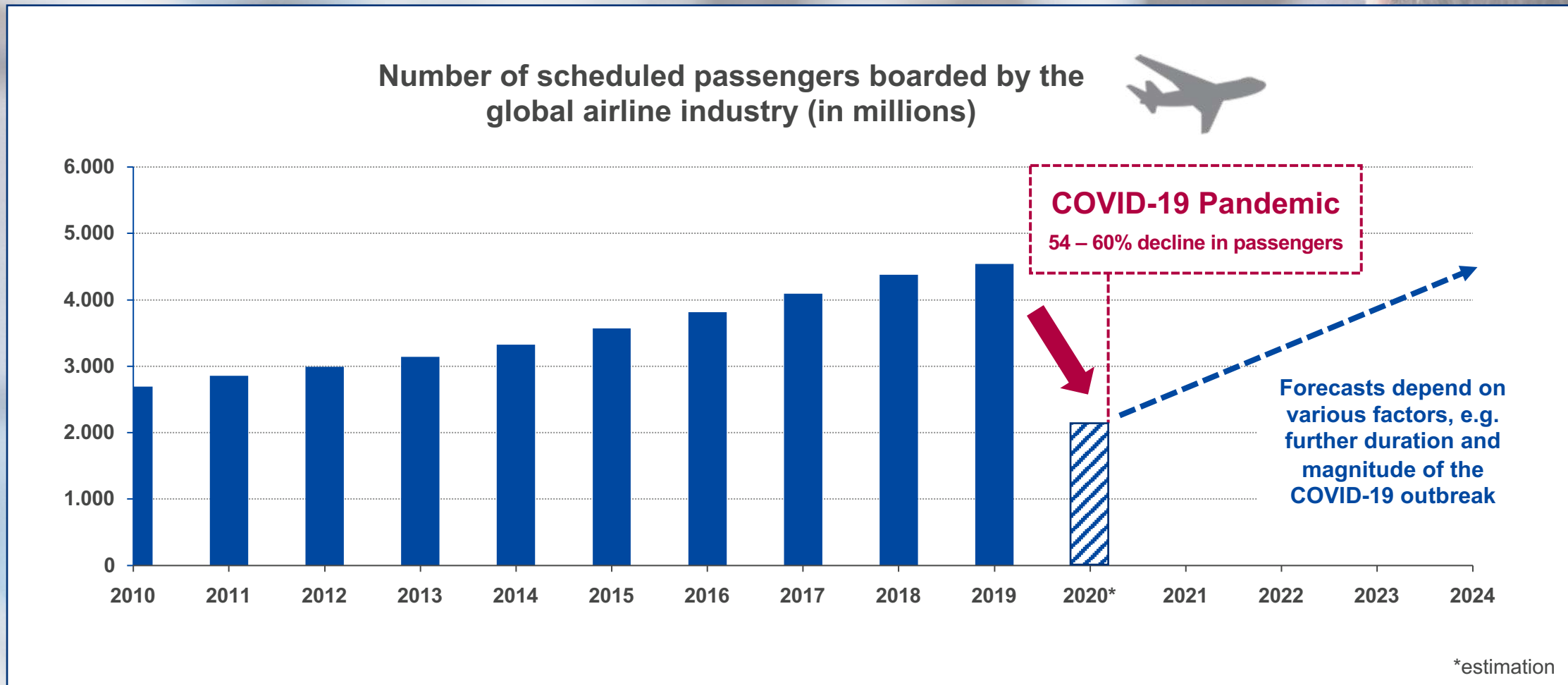


Update on Waste and Residues Based Sustainable Aviation Fuels under CORSIA

Dr Norbert Schmitz, Managing Director, ISCC System GmbH

ISCC Technical Stakeholder Meeting “Waste, Residues and Advanced Low Carbon Fuels”, 01 September 2020

The International Air Travel Organization (IATA) forecasts that the global passenger traffic will not return to pre-COVID-19 levels until 2024



Sources: IATA, ICAO (2020). <https://www.statista.com/statistics/564717/airline-industry-passenger-traffic-globally/>, IATA (2020). <https://www.iata.org/en/pressroom/pr/2020-07-28-02/>

© ISCC System GmbH: For personal use only. Reproduction and distribution is prohibited.

Post-COVID-19 recovery of the aviation industry needs to focus on emissions reduction and investment in sustainable aviation fuels (SAF)

“

“SAF is our biggest emissions reduction opportunity. **The time is right** to push it forward so that, together, we can achieve major carbon reductions on the way towards fossil fuel-free flight.”

”

Alexandre de Juniac, Director General and CEO, International Air Transport Association (IATA)

(Date: 9 June 2020)



Sustainable aviation fuels (SAF) are becoming more important in the European legislative framework

- Scandinavian countries push for binding regulatory requirements
 - Example **Norway**: Since January 2020, jet fuel supplier in Norway must blend 0.5% of SAF in all their aviation fuel
- The “ReFuelEU Aviation” Initiative, organised by the DG MOVE – Aviation Policy Unit of the European Union currently discusses a **SAF blending mandate** for the EU
 - A possible mandate would consist of imposing a minimum share of SAF, which would gradually increase over time

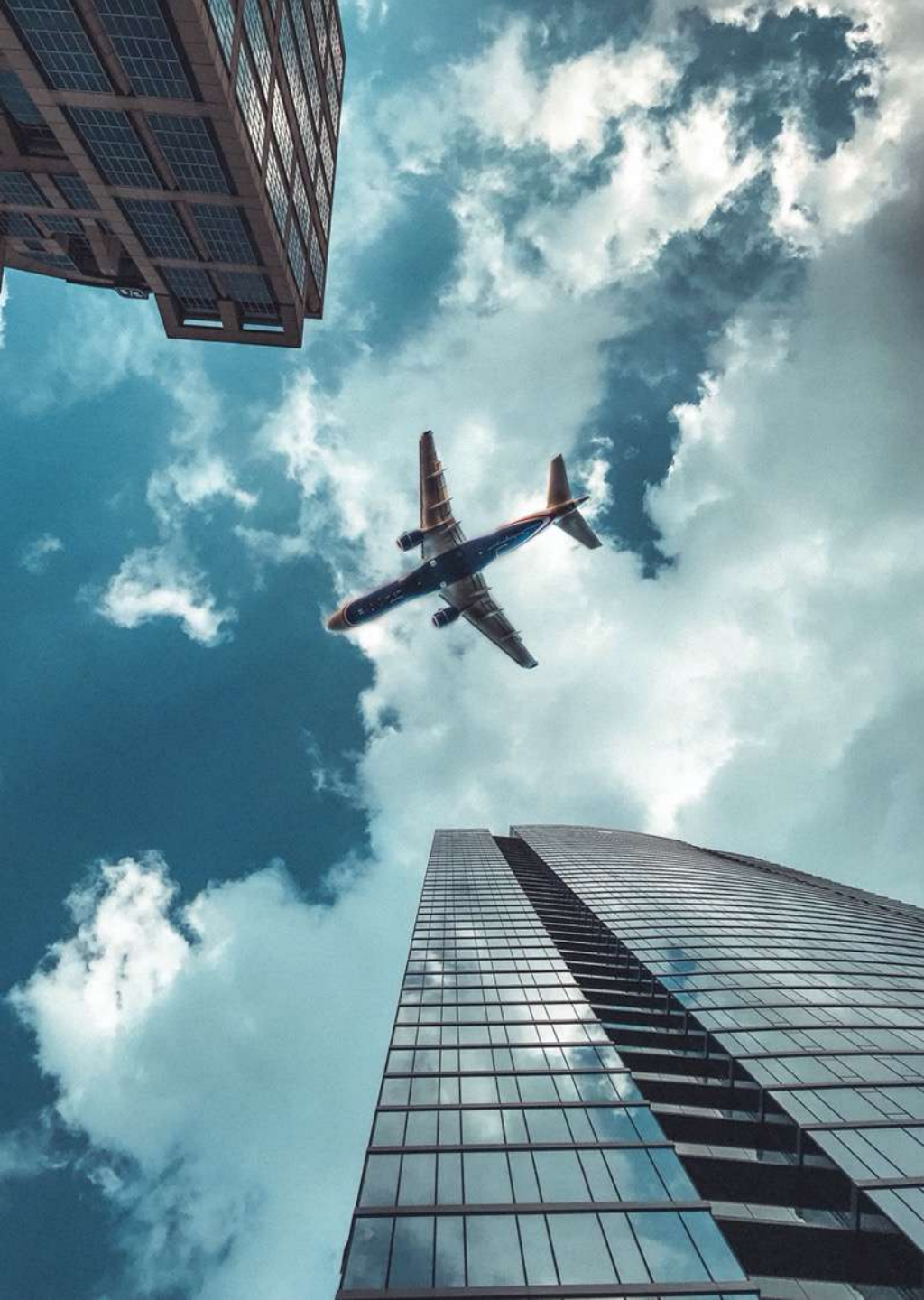
Ambitious targets of ICAO Member States: carbon-neutral growth from 2020 (*baseline: 2019 emissions*) and 50% emissions reduction by 2050

Timeline for ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSI A)



- **81 states** (including all EU Member States), representing around **80% of international aviation** intend to participate in CORSIA*
- **The majority of airlines** will be affected by these developments

*Source: ICAO (2019). <https://www.icao.int/environmental-protection/CORSIA/Pages/state-pairs.aspx>



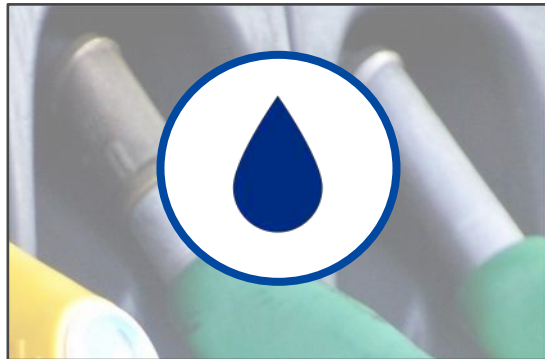
Compared to fossil fuels, SAF have the potential to cut emissions substantially

- According to the ICAO 2016 trends assessment, a 100 % substitution of fossil fuels with SAF could **reduce 63% of the baseline CO2 emissions** from international flights in 2050*
- **Using existing schemes will help to make commercial volumes available.** It reduces the organisational and cost burden on companies in the supply chain and thus will increase acceptance
- **SAF production capacity forecast:** 6.3 million m³ of SAF production capacity available by 2025 and 8 million m³ in 2032**
- Beyond sustainable aviation fuels, the concept of “**Lower Carbon Aviation Fuels**” (LCAF) is based on prospective technologies that may allow the production of fossil fuels with a lower carbon footprint.

*Source: https://www.icao.int/environmental-protection/Documents/EnvironmentalReports/2016/ENVReport2016_pg16-22.pdf

**Source: <https://www.icao.int/environmental-protection/pages/SAF.aspx>

ISCC is a well experienced certification scheme with innovative tools to verify sustainability requirements set for the aviation sector



Currently, **more than 4.000 companies** in **over 100 countries** use ISCC

Major fuel producers are active users of the ISCC certification system



Over 12 million tons of certified waste and residues feedstock mainly used for the production of fuels




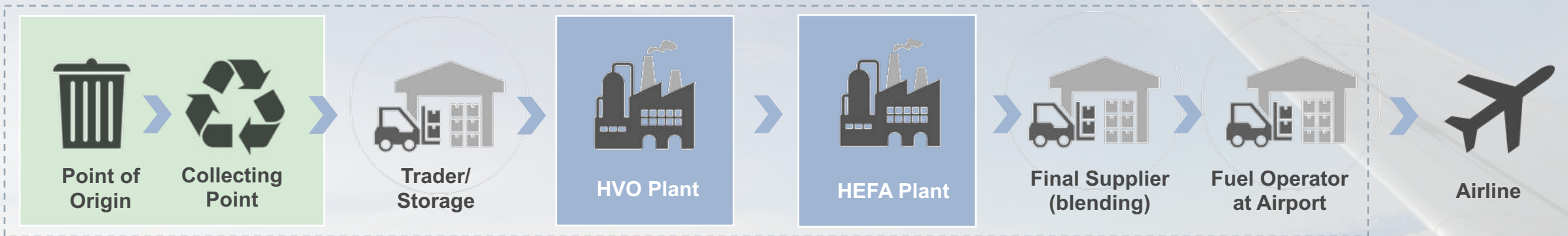
ISCC has comprehensive experiences in the **road transportation market** and supports the certification of **recycled carbon fuels and RFNBOs**



Comprehensive experience with **reliable greenhouse gas (GHG) emissions calculations** – over 1.600 certificates based on actual GHG values

Waste and residues can be used for the production of CORSIA eligible SAF


CORSIA Sustainability Criteria 1 requires at least 10% net GHG emissions reductions for a SAF to be recognised under CORSIA



Feedstock collection
Zero emissions for w/r feedstock
Upstream transport (from collection) e_{td}

Processing Unit
Processing e_p
Upstream transport e_{td}
Excess electricity e_{ee}
CCR e_{ccr}
CCS e_{ccs}

Final Processing
Processing e_p
Upstream & downstream transport & distribution e_{td}
Excess electricity e_{ee}
CCR e_{ccr}
CCS e_{ccs}

To calculate the life cycle emission value of a SAF, GHG values are forwarded in the supply chain step by step

CCR: Carbon Capture and Replacement
CCS: Carbon Capture and Storage

ICAO has published a positive list of materials classified as residues, wastes or by-products for CORSIA eligible fuels

Examples

Processing residues



Empty palm fruit bunches



Tall oil

Wastes



Used cooking oil (UCO)

Agricultural and forestry residues



Cobs



Manure

By-products



Palm fatty acid distillate (PFAD)



Palm oil mill effluent (POME)



Sewage sludge



Municipal solid waste



Bark



Branches



Tallow

In comparison to agricultural feedstocks, waste and residues based SAF do not need to include an ILUC LCA value in their life cycle emissions value

- CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels available
- Airplane operators can also use actual life cycle values if a producer can demonstrate lower core life cycle emissions compared to the default values

Example default values for HEFA

Table 1. CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels

Fuel Conversion Process	Region	Fuel Feedstock	Core LCA Value	ILUC LCA Value	LS _f (gCO ₂ e/MJ)
Hydroprocessed esters and fatty acids (HEFA)	Global	Tallow	22.5	0.0	22.5
	Global	Used cooking oil	13.9		13.9
	Global	Palm fatty acid distillate	20.7		20.7
	Global	Corn oil (from dry mill ethanol plant)	17.2		17.2
	USA	Soybean oil	40.4	24.5	64.9
	Brazil	Soybean oil	40.4	27.0	67.4
	EU	Rapeseed oil	47.4	24.1	71.5
	Malaysia & Indonesia	Palm oil – closed pond	37.4	39.1	76.5
	Malaysia & Indonesia	Palm oil – open pond	60.0	39.1	99.1

- The highest life cycle emissions factor (LS_f) of a waste and residues based fuel is **22.5 (Tallow)** and still well below the lowest emissions factor of an agricultural based fuel (**US-soybean oil, LS_f of 64.4**)
- **UCO** only accounts for an LS_f of **13.9**

ISCC supports the deployment of SAF

- ISCC members and system users active in SAF



- At the time being, 4 SAF producers and traders ISCC certified
- KLM and Lufthansa already use(d) ISCC certified SAF
- ISCC is involved in a scientific project analysing reporting requirements in supply chains of multi-blends of fossil and SAF (German Federal Government)

Amstelveen, 10 December 2019

KLM and Neste are taking another step forward in sustainable aviation fuel for flights from Schiphol

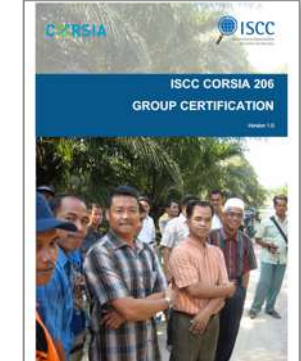
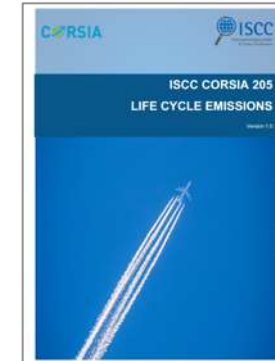
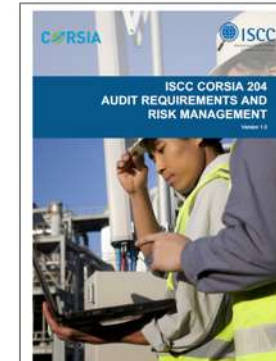
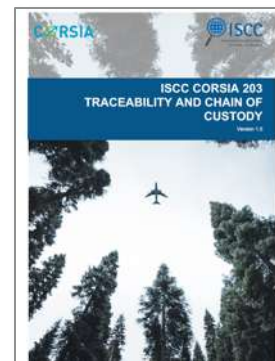
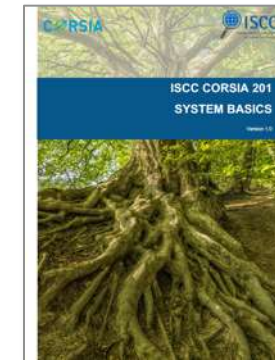
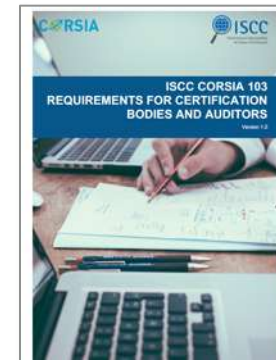
[...]

KLM only sources sustainable aviation fuels based on waste and residue feedstocks that significantly reduce the CO2 footprint and do not have a negative impact on food production or the environment. The sustainability of the chain is ensured through certification by the International Sustainability and Carbon Certification Plus (ISCC+) and

ISCC has submitted its application to ICAO as a sustainability certification scheme under CORSIA



- For the recognition, ISCC has developed a new **ISCC CORSIA Standard**
- The ISCC CORSIA System Document 201-1 “Waste, Residues, By-Products” will provide detailed information on:
 - Definitions and Regulatory Framework
 - Certification Process
 - Sustainability Requirements
 - Life Cycle Greenhouse Gas Emissions
 - Traceability and Chain of Custody
 - Inclusion of Additional Materials





NEW: Virtual Stakeholder Meeting ”Sustainable Aviation Fuels with ISCC”

■ **Date: 03 December 2020**

■ **Content:**

- The new ISCC CORSIA Standard
- Regulatory frameworks
- Chances and challenges of the deployment of SAF
- Next steps and stakeholder discussions

**Information and registration
on the ISCC website**

More information can be found on the ISCC website, including updates on further developments, conferences and publications

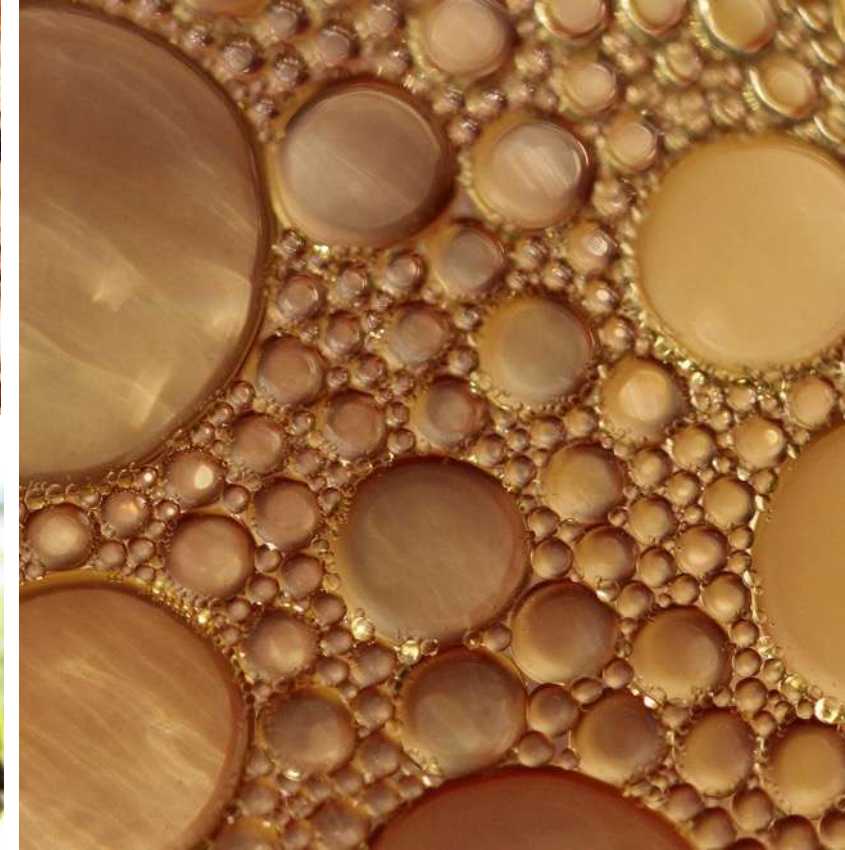
The screenshot shows the ISCC website's header with the logo and navigation menu: About, Process, Certificates, Trainings & Events, Stakeholders, and Smallholder Academy. The main banner features a sunset sky with an airplane wing and the text 'About · Sustainable Aviation Fuels' and 'Sustainable Aviation Fuels Certification with ISCC'. Below the banner, the main content area has a heading 'Sustainable Aviation Fuels Certification with ISCC' and two paragraphs of text. The first paragraph discusses the challenges of climate change and the need for lower greenhouse gas emissions, mentioning ICAO and CORSIA. The second paragraph notes that global flight numbers are rising, with 4.3 billion passengers in 2018, a 62% increase from 2010, and that traffic is expected to return to pre-COVID levels by 2014. To the right of the text is an image of an airplane flying between two skyscrapers. A sidebar on the right contains a navigation menu with items: About, Objectives, The Impact of our Work, Governance & Transparency, Food Security, Circular Economy and Bioeconomy, Sustainable Aviation Fuels (highlighted), Benchmarking, News, and Career.



Many thanks for your attention!

Follow us on   

Dr Norbert Schmitz, ISCC System GmbH
Hohenzollernring 72, 50672 Cologne, Germany
Email: schmitz@iscc-system.org



Stakeholder Discussion and Agreement on Next Steps Part 2

Stakeholder Discussion and Agreement on Next Steps

- Further points of discussion?
- Experience and feedback shared in the TC and in the Working Group(s) will be reflected in the revised scheme documents for re-recognition under RED II
- ISCC is willing to share experience and knowledge regarding certification, international supply chains, national regulations, and database development
- Next meeting of the TC: Early September 2021
- Feedback poll



Many thanks for your attention!

Follow us on   

Dr Norbert Schmitz, ISCC System GmbH
Hohenzollernring 72, 50672 Cologne, Germany
Email: schmitz@iscc-system.org