











Scaling Up the Market for Sustainable Aviation Fuels with ISCC

Dr Norbert Schmitz, Managing Director, ISCC System GmbH
ISCC Global Sustainability Conference, 24 February 2021

SAF allow immediate emission reduction. Electrification and fuel cells are currently not feasible and years away from large-scale application

Comparison vs fossil kerosene	1 Battery-electric 	2 H ₂ fuel cell 	H ₂ turbine 	3 Sustainable aviation fuel 
Climate impact ⁱ 	100% reduction ⁱ	75%-90% reduction	50%-75% reduction	30%-60% reduction ⁱⁱⁱ
Aircraft design 	Low-battery density limits ranges to 500km-1,000km	Feasible only for commuter to short-range segments	Feasible for all segments except for flights >10,000km	Only minor changes
Aircraft operations 	Same or shorter turnaround times	1-2x longer refuelling times for up to short range	2-3x longer refuelling times for medium and long range	Same turnaround times
Airport infrastructure 	Fast-charging or battery exchange system required	LH ₂ distribution and storage required		Existing infrastructure can be used

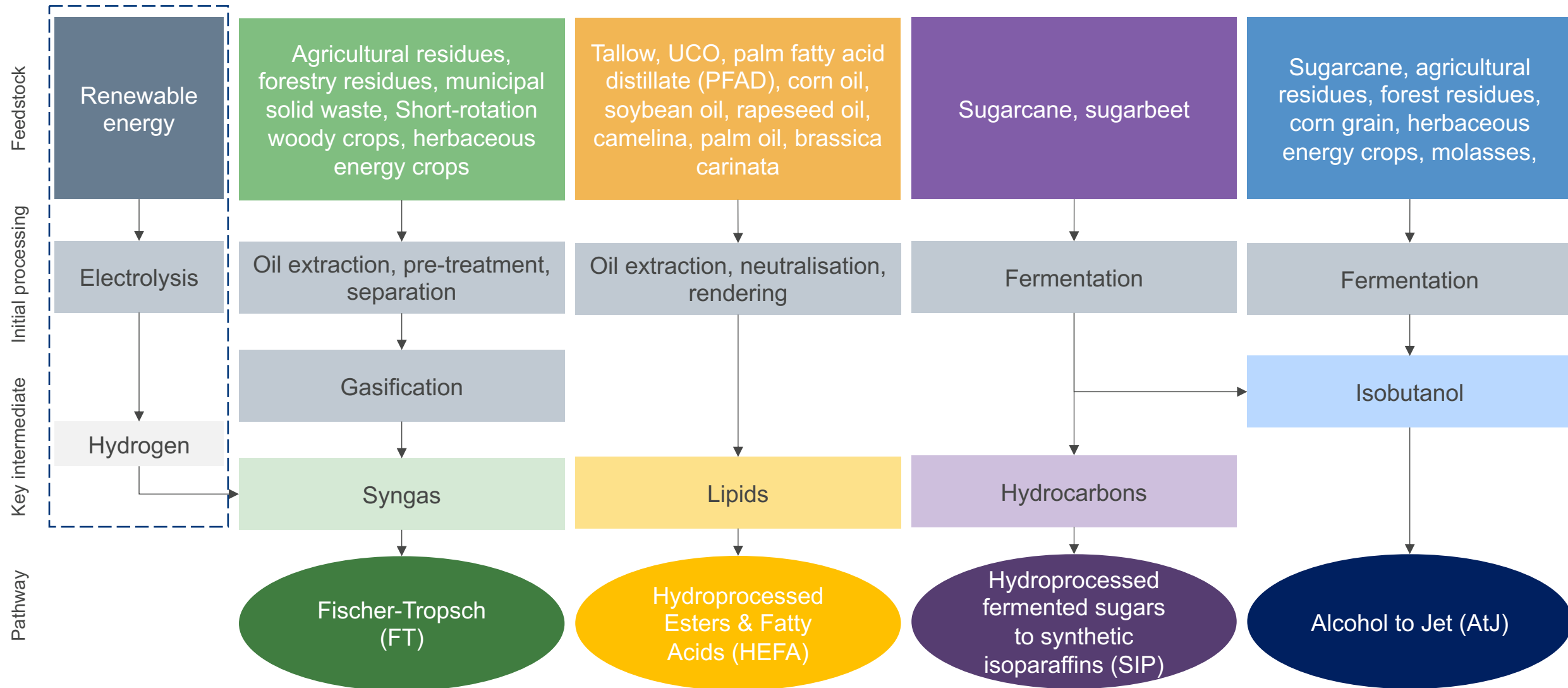
■ Major advantages ■ Major challenges

i. Including CO₂, NOx, water vapour and contrails ii. Assuming 100% renewable electricity iii. For e-fuels with fully decarbonized supply chain
Source: Clean Sky 2 JU & FCH 2 JU: Hydrogen-powered aviation report (made possible with funding provided by the EU); expert interviews



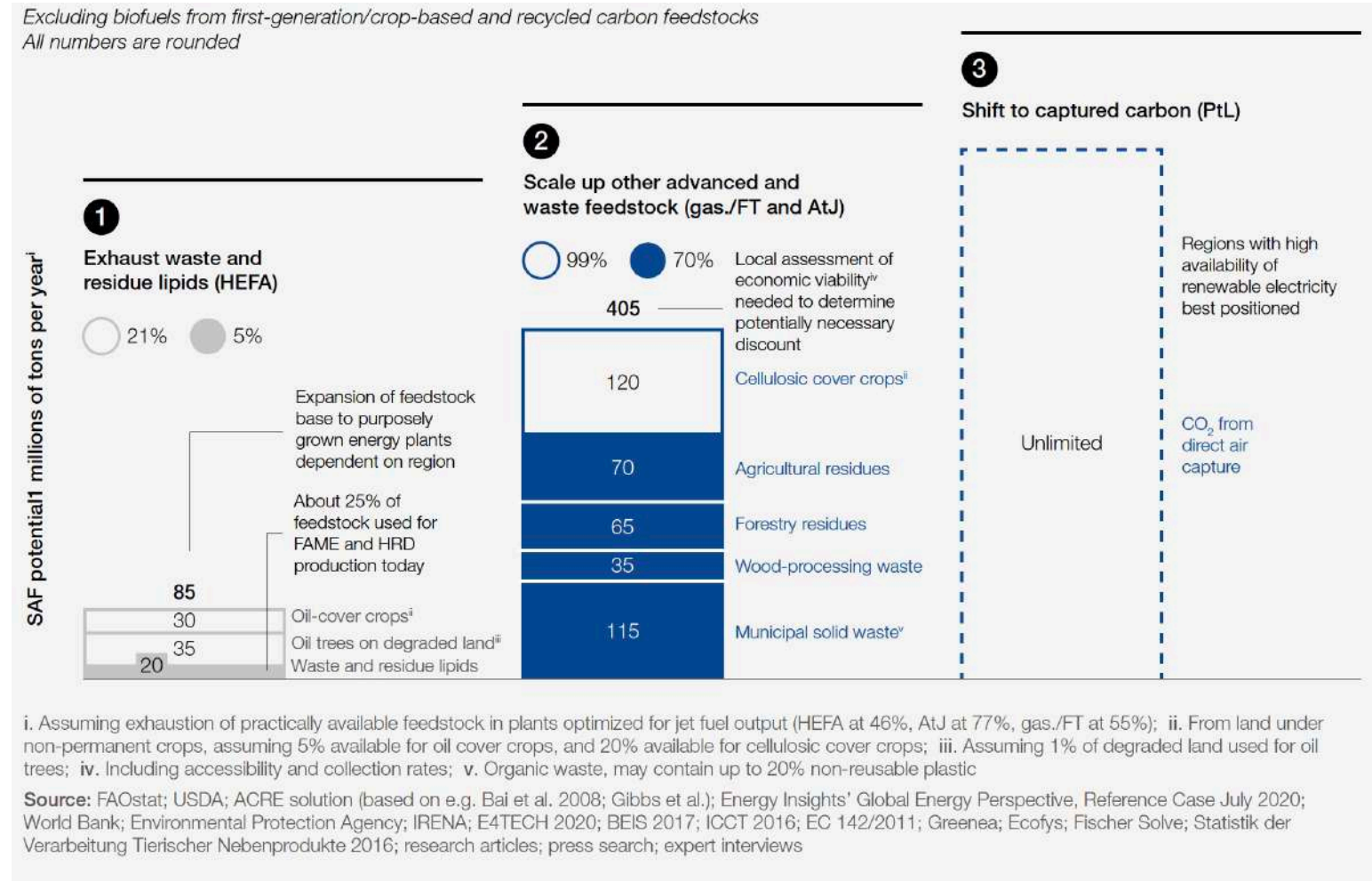
Source: World Economic Forum – Clean Skies Tomorrow Insight Report, November 2020

Different fuel pathways for the production of SAF



Scaling up the production of feedstocks is essential and yet there are still some challenges

- Collectability of certain feedstocks
- Maturation of technologies
- Need for increasing demand, stipulated by consumer behaviour and supportive legislations
- Competition from other industry sectors, mainly road transportation and the chemical industry
- Production costs of SAF in comparison with fossil jet fuel





ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ICAO document

CORSIA Approved Sustainability Certification Schemes



November 2020



Carbon Offsetting and Reduction Scheme for International Aviation

CORSIA Approved Sustainability Certification Schemes (SCS)

Two SCS are currently recognized by ICAO for the certification of CORSIA Eligible Fuels:

Name of the Sustainability Certification Scheme	Date of approval	Website	Applications and other Supporting Information	Application date
International Sustainability and Carbon Certification (ISCC)	18/Nov/2020	https://www.iscc-system.org/	https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-ISCC.aspx	30/Apr/2020
Roundtable on Sustainable Biomaterials (RSB)	18/Nov/2020	https://rsb.org/	https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-RSB.aspx	30/Apr/2020

Source: ICAO website: <https://www.icao.int/environmental-protection/CORSIA/Pages/implementation-elements.aspx>

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The ICAO Council adopted a set of sustainability criteria for CORSIA eligible fuels

1

Greenhouse Gases

2

Carbon Stock

Principle

CORSIA eligible fuel should generate **lower carbon emissions** on a life cycle basis

CORSIA eligible fuel should **not** be made from biomass obtained **from land with high carbon stock**

Criteria

At least **10% net GHG emissions** reductions compared to the baseline life cycle emissions values for aviation fuel on a life cycle basis

No land use change of land with high carbon stock (primary forests, wetlands and peatlands) **on or after 01 January 2008**



CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes (SCS)

General requirements for SCS



Documentation & Management & Transparency



Annual reports, Monitoring & System Review



Stakeholder Engagement



GHG Reporting & Accounting



Complaint Procedure



Risk Management Plan

Requirements set by SCS for economic operators



Mass Balance & Supply Chain Traceability



(Group) Audits & Certificate Issuance



Transparency on other SCS used



Assurance Level & handling Non-compliances



Accreditation & Auditing Standards



CORSIA Certification Requirements

ISCC CORSIA is a stand-alone system. Combined audits with ISCC PLUS or EU are facilitated by harmonized system elements



Multi-stakeholder organization



Quality and risk management



Integrity Program



Requirements for certification bodies



Requirements for conducting audits



Registration and certification process

The **System Documents** build the basis of the ISCC CORSIA certification system

- The ISCC CORSIA System Documents provide clear answers regarding **certification requirements and processes** for certification bodies and for System Users
- All System Documents are **publicly available** on the ISCC website



Training of ISCC CORSIA auditors has started as well as regular stakeholder dialogue in a Technical Committee



Stakeholder Meeting

First virtual aviation meeting in December 2020 with more than **130 participants**

- Speakers from the European Commission, IATA, aviation organisations and market participants
- Demand for the establishment of a Technical Stakeholder Committee “Sustainable Aviation Fuels”

→ **Meeting** of the ISCC Technical Stakeholder Committee is **scheduled for Autumn**

[More information on the ISCC website](#)



ISCC CORSIA Training

First training course in February with more than **50 participants**

- The training course is open to all interested parties. Participation is mandatory for ISCC auditors who want to conduct ISCC CORSIA audits
- Detailed insights on the legal framework of CORSIA, SAF certification processes and sustainability requirements

→ **Next training course is scheduled for Autumn**

[More information on the ISCC website](#)

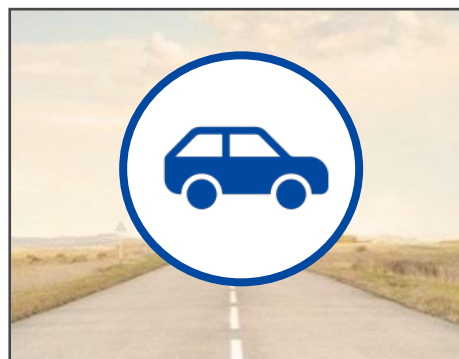
ISCC certification is based on long-term experience in the transport sector, applying GHG calculation methodologies and state-of-the-art technology



Over 83 million tons of certified feedstock basis available which could be used for alternative jet fuels



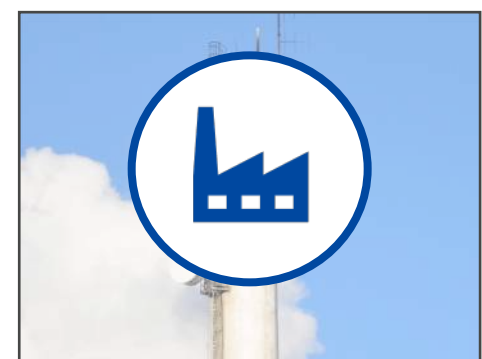
Currently, more than **4,600 companies** use ISCC
Major fuel producers are active users of the ISCC certification system



ISCC has vast **experience in the transportation market** and supports the certification of **advanced and recycled carbon fuels**



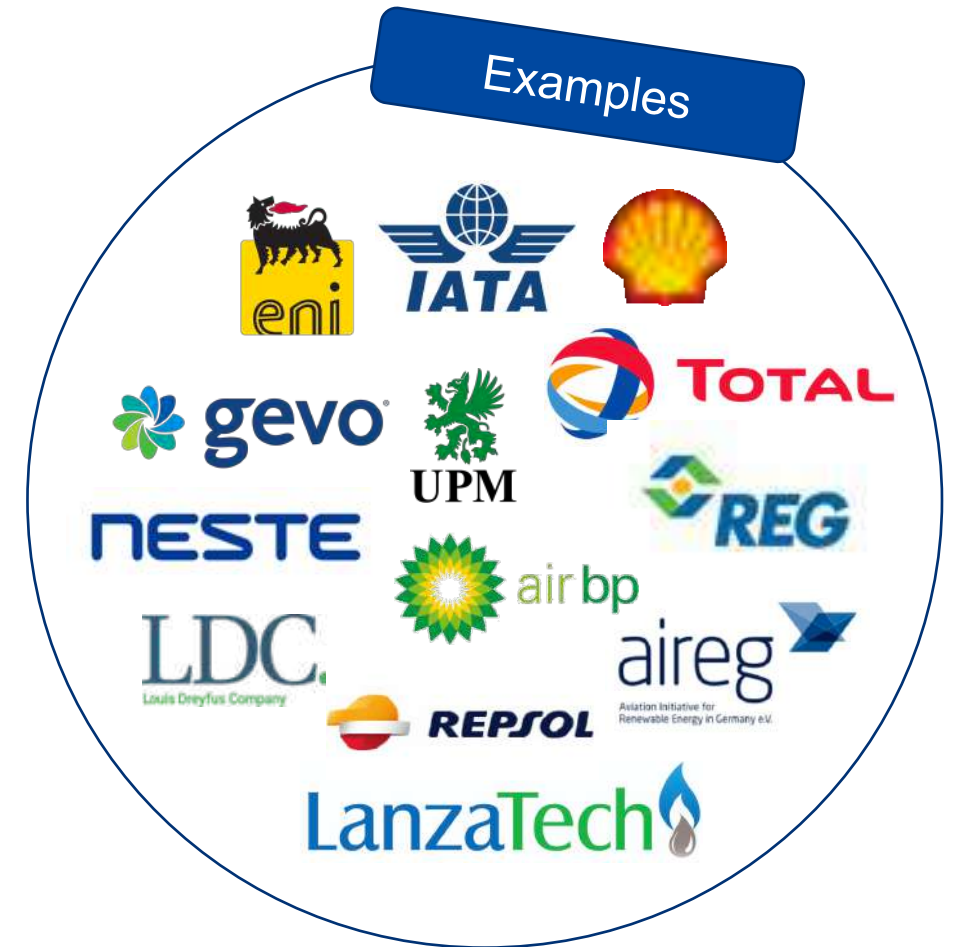
Latest remote sensing technologies to support the verification of land use change and to ensure that **supply chains are deforestation-free**



Comprehensive experience with **reliable greenhouse gas (GHG) emissions calculations** – over 1,800 certificates based on actual GHG values

ISCC is engaged in supporting the aviation industry in achieving its climate targets

- Several ISCC members and system users are active in SAF
- ISCC is an active member of the CAEP Fuels Task Group that is working on CORSIA eligible SAF and LCAF (lower carbon aviation fuels)
- ISCC was involved in a scientific project analysing reporting requirements in supply chains of aviation fuel multi-blends
- ISCC is actively supporting various initiatives, and conducts pilots in supply chain certification
- ISCC currently has 2 certificates covering HEFA and 46 covering HVO which can be converted into HEFA





Many thanks for your attention!

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