

SEMINAR ON THE COMMERCIAL DEVELOPMENT OF E-FUEL IN AVIATION

“FINANCING”



Time flies.

24.04.2024

IMPACT – WHO WE ARE

impact brings together aviation and financial institutions that see the need for clear and simple emissions standards in financing contracts. Such covenants are crucial levers to make flying more sustainable at last.

***A non-profit organization,
free of vested interests***

An independent association, impact's members include leading aviation banks, lessors, investors, law and accounting firms, and academic institutions from all over the world.



impact encourages cross-stakeholder cooperation and collaboration which is essential to mobilize funding for tangible decarbonisation technologies (e.g. SAF).

impact is committed to avoid greenwashing.

impact combines different stakeholder groups. Impact is run by its members for its members.

BRINGING TOGETHER EXPERTISE



AVIOMICS
DECODING AIRLINE STRATEGIES.



University College Dublin
Ireland's Global University



REICHMUTH & CO



EU TAXONOMY & THE ROLE OF SAF



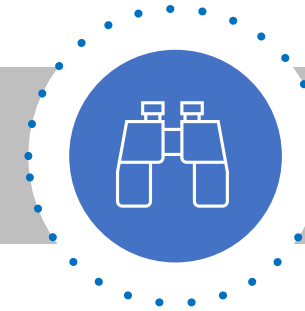
WHAT IT IS

- Framework to determine the environmental sustainability of an economic activity
- Environmental objectives, incl. i.a.
 - **Climate change mitigation**
 - Climate change adaptation
 - Sustainable use and protection of water and marine resources
 - Transition to a circular economy
 - Pollution prevention and control
 - Protection and restoration of biodiversity and ecosystems
- Economic activities can be included if
 - Substantial contribution to one or more of a.m. objective
 - Do no significant harm
 - Carried out in compliance with certain safeguards (e.g. labour standards)
 - Comply with technical screening criteria



PURPOSE

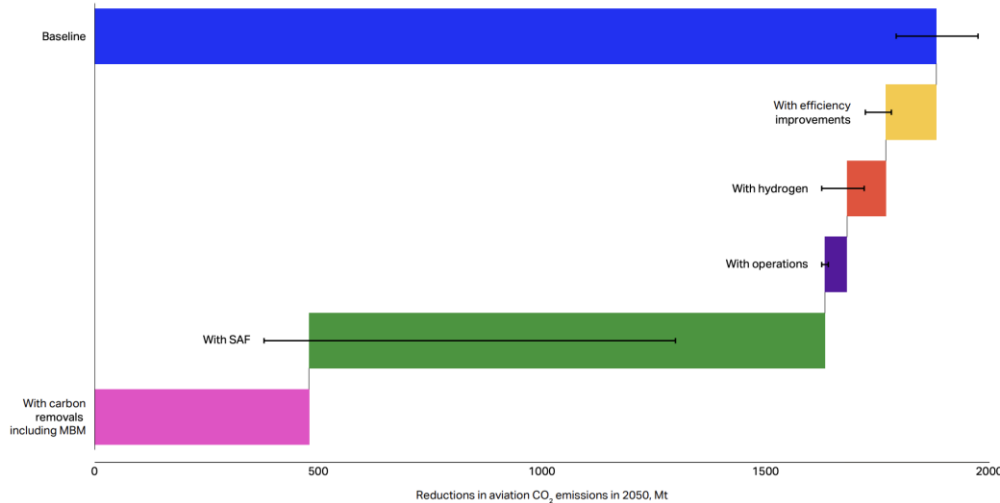
- Mobilise/incentivize capital to support transition to low carbon economy
- Encourage investor confidence about desired positive environmental impact
- Compliance with EU Taxonomy facilitates access to financing
- Pursuant to EU Taxonomy Regulation entities must disclose
 - Proportion of turnover derived from products associated with economic activities that qualify as environmentally sustainable
 - Proportion of capital expenditure and proportion of operating expenditure related to such economic activities



TRANSITION ACTIVITIES

- EC recognizes that aviation industry can play a significant role in reducing carbon emissions and thus make a contribution to climate **change mitigation**
- Aviation, although a hard-to-abate sector, is considered “transition activity” subject to meeting criteria, i.a.
 - From 01.01.2028 to 31.12.2032 relevant aircraft must be certified to run on 100% blend of SAF, AND
 - From 01.01.2030 aircraft must be operated with 15% SAF, increasing by 2% annually thereafter

DECARBONIZATION – HOW TO?



Source: IATA Sustainability and Economics, ICAO LTAG SAF availability scenarios

STEP 1: Transparency & standardisation

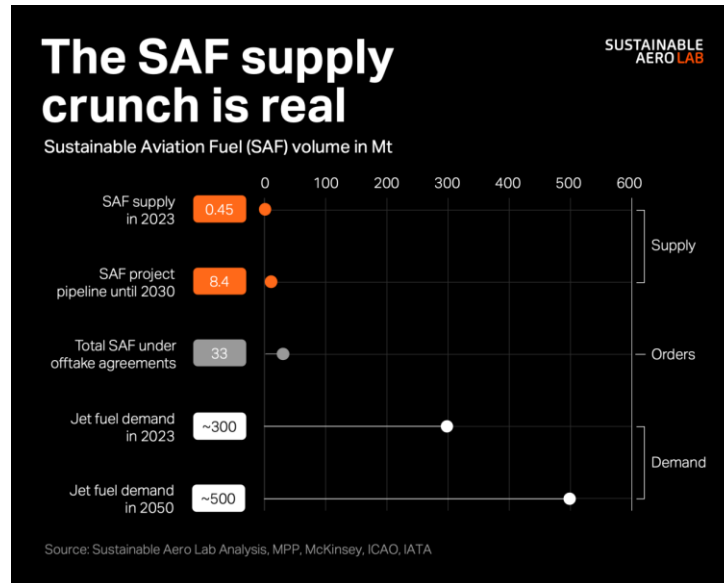
STEP 2: Technologies and efficiency improvements

- ✓ Multiple levers available
- ✓ SAF has biggest lever followed by carbon removals

STEP 3: Finance

- ✓ Massive investments at c. EUR 175bn p.a. through to 2050 (NOTE: aviation's current total R&D spend is c. USD 23bn p.a.)

THE SAF SUPPLY CRUNCH



Source: Sustainable Aero Lab

✓ SAF Status

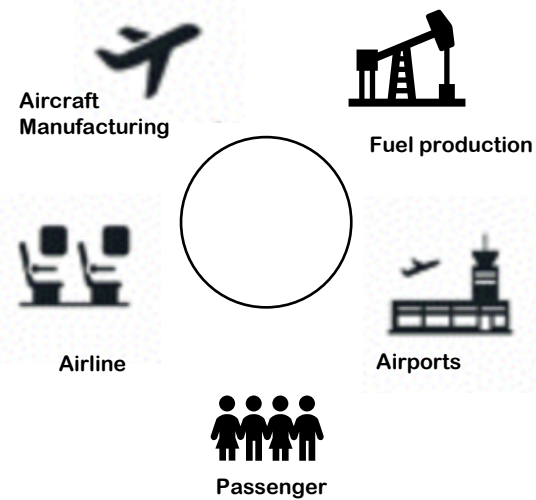
- ✓ 2023: 0.45Mt used vs 300Mt fuel demand
- ✓ By 2030 with all new SAF plants in the pipeline production will only be around 8.4Mt

✓ Aviation's decarbonization requires

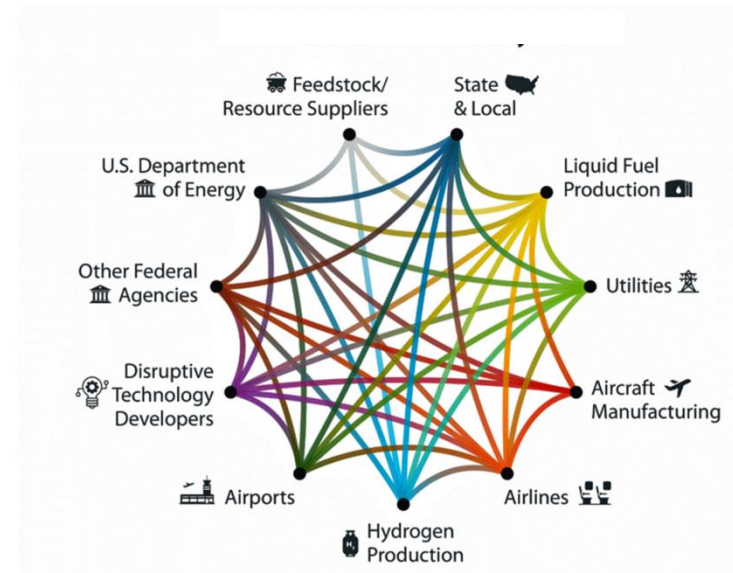
- ✓ Commissioning of c. 300 – 400 plants by 2030
- ✓ C. 5,000-6,000 SAF by 2050, i.e. c. commissioning of 180 plants p.a.

ECOSYSTEM EVOLUTION: COMPLEXITY THE NEW NORM

Ecosystem ... once upon a time



... NOW: Sustainable Aviation System

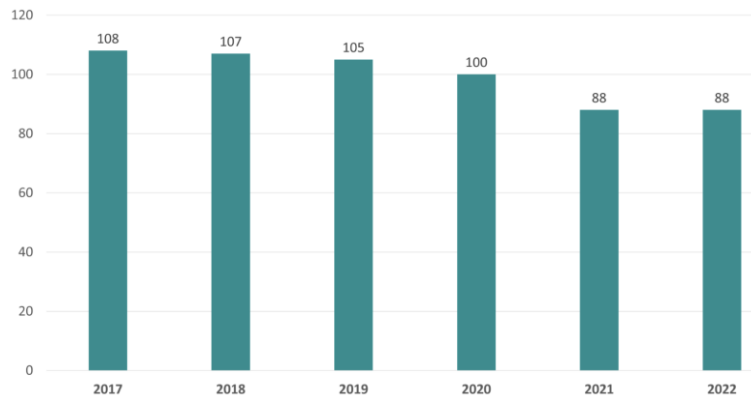


Decarbonizing aviation demands unprecedented collaboration. Where do you fit in tomorrow's sustainable aviation ecosystem?

Source: NREL Transforming Energy

INTRANSPARENCY CONFIRMS NEED FOR STANDARDISATION

Number of airlines reporting



Source: PACE

Observation:

- ✓ Less than 15% of airlines report emissions – and they use many different methods
- ✓ An airline can voluntarily file up to 27 different reports to various bodies every year
- ✓ A jumble of definitions confronts regulators, financiers, NGOs and industry bodies

Risks:

- ✓ Voluntary-reporting inconsistencies as damaging as non-reporting
- ✓ Public accusations of greenwashing and calls for government action
- ✓ Misaligned regulation that harms the industry more than necessary

THE SUSTAINABILITY CONUNDRUM

The world is committed to net-zero emissions by 2050.

The “sustainability conundrum” that aviation needs to tackle:

KPI	Timeframe	yoy change
RPK	2010 – 2019	4.9% ¹⁾
CO ₂	2010 – 2019	3.5% ²⁾
Intensity (CO ₂ /RPK)	2005 – 2020	-3.4% ³⁾
Target CO ₂	2019 – 2050	-5.0% ⁴⁾

As long as fuel-efficiency gains remain too small to offset the added emissions of air-traffic growth, CO₂ emissions will continue to rise as revenue passenger kilometers do.

The IEA estimates aviation needs to cut emissions by at least 5% a year to reach net zero in 2050. At current trends, aviation’s share of global emissions looks set to rise sharply.

1) <https://www.icao.int/annual-report-2019/Pages/the-world-of-air-transport-in-2019.aspx>

2) <https://www.iea.org/fuels-and-technologies/aviation>

3) <https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/future-air-mobility-blog/fuel-efficiency-why-airlines-need-to-switch-to-more-ambitious-measures>

4) IEA 2021: Net Zero by 2050: A Roadmap for the Global Energy Sector

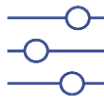
IMPACT'S HOLISTIC APPROACH TO DECARBONISATION

- ✓ Focus on decoupling aviation's CO₂ emissions from the industry's economic output – an idea pursued by the EU and OECD, among others
- ✓ Three simple KPIs to make emissions transparent and allow target-setting



Emissions footprint (effectiveness)

How much CO₂ does an airline emit in total?



Emissions intensity (efficiency)

How much CO₂ is needed to produce a certain unit of capacity?

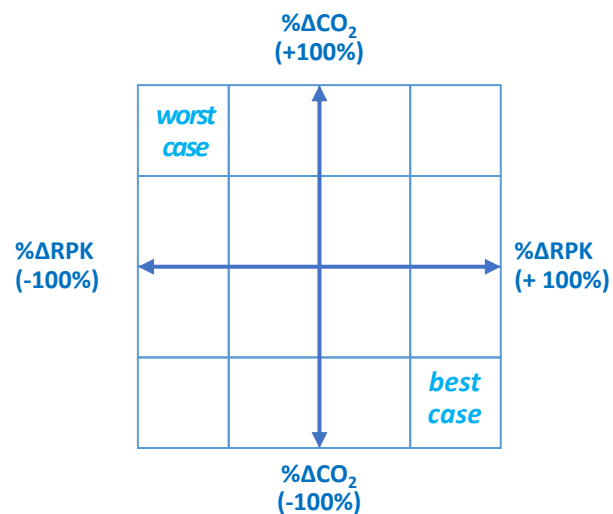


Emissions decoupling (transition trend)

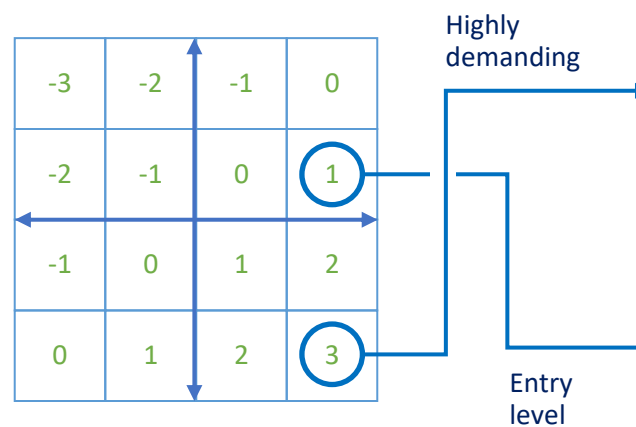
How closely are CO₂-emissions trends coupled with capacity changes?

MILESTONES: SCORING THE SUSTAINABILITY OF AVIATION WITHOUT ASSUMPTION-BASED MODELS

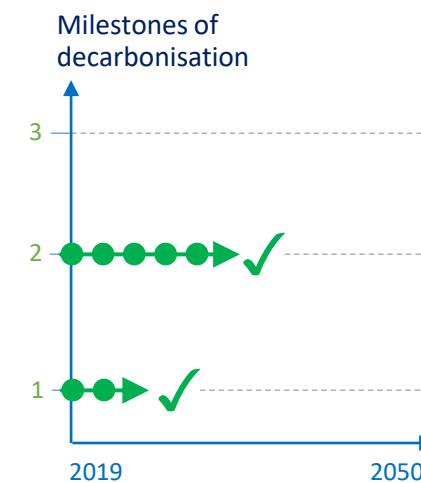
1 Sizing the matrix



2 Scoring the positions



3 Setting the milestones





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THANK YOU

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