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## Navigating Turbulence: A Critical Analysis of GHG Reporting in European Aviation

THE 13<sup>th</sup> EUROPEAN  
AVIATION CONFERENCE  
EAC-2025 2025年11月10-12日



Luis Martín-Domingo<sup>1, 2\*</sup>; Marina Efthymiou<sup>1</sup>; and Miguel Mújica-Mota<sup>3</sup>

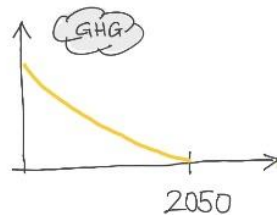
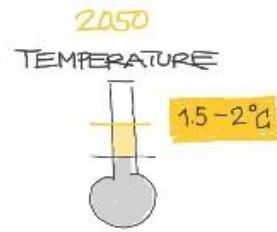
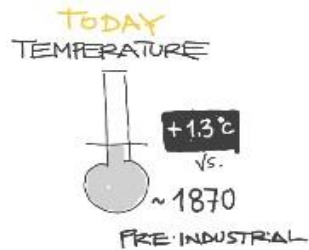
<sup>1</sup> Dublin City University; <sup>2</sup> Ozyegin University; <sup>3</sup> Amsterdam University of Applied Sciences



Funded by  
the European Union

This project has received funding from the European Union's HORIZON-MSCA-2023-PF-01 research programme under the Marie Skłodowska-Curie (MSCA) Grant Project: [101151804](https://101151804) — AZERO

# Context



**Temperature increase** and suggested ceiling by science

**Paris Agreement EU Green Deal** leading to **Net Zero 2050**

**Air Transport commitment** to Net Zero 2050, but **what about researchers?**

# Impact of aviation emissions on the climate

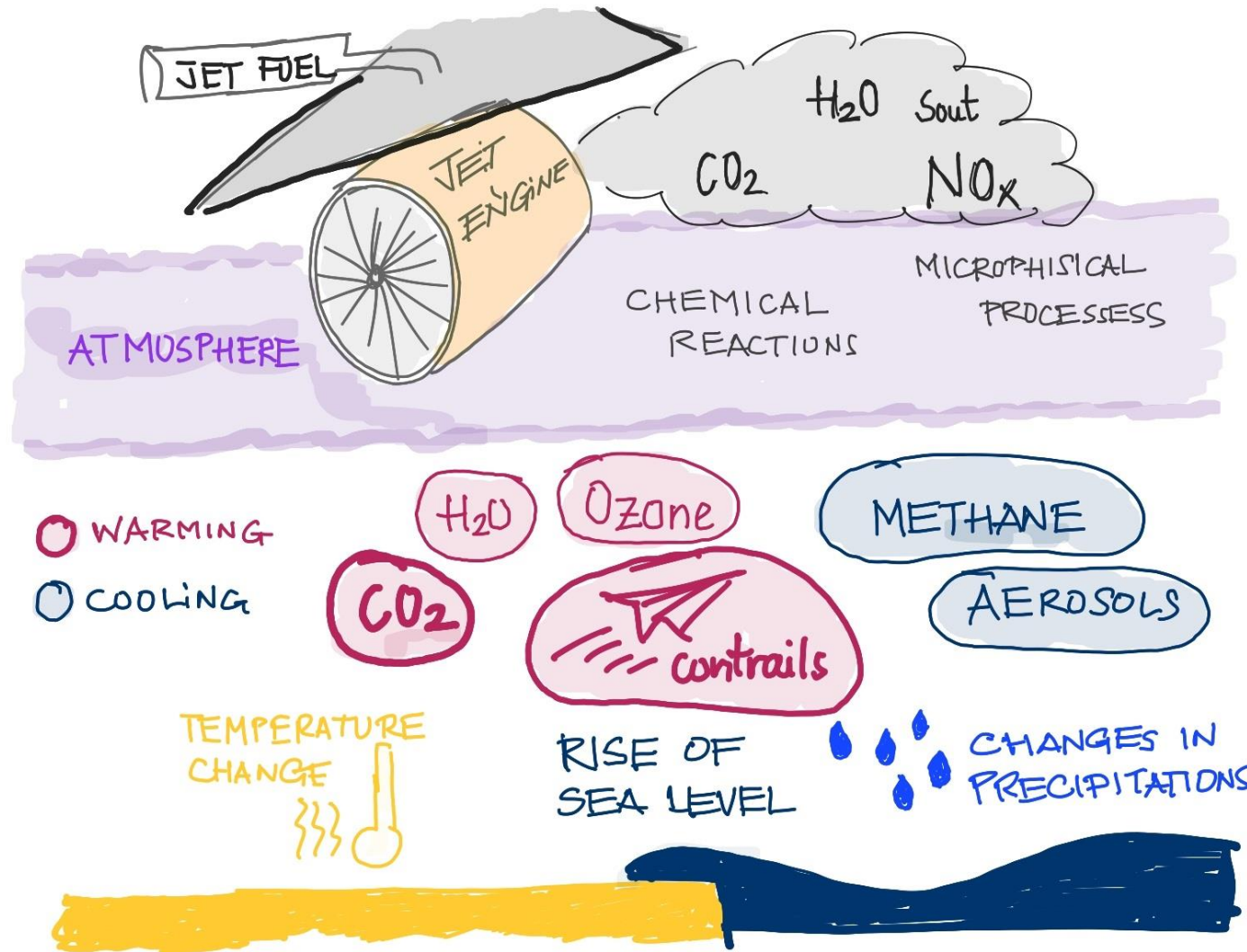
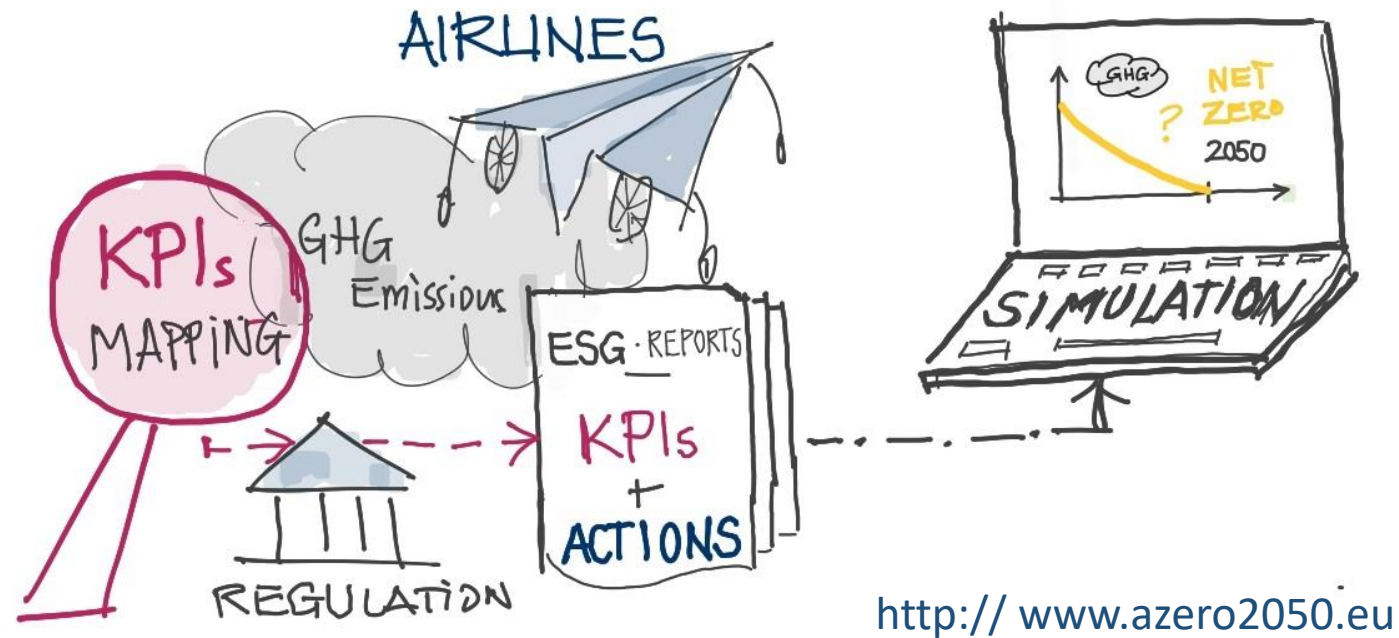


Figure 1: Impact of aviation emissions on the climate (Martín-Domingo, L. 2024 – based on German Environmental Agency (2023))

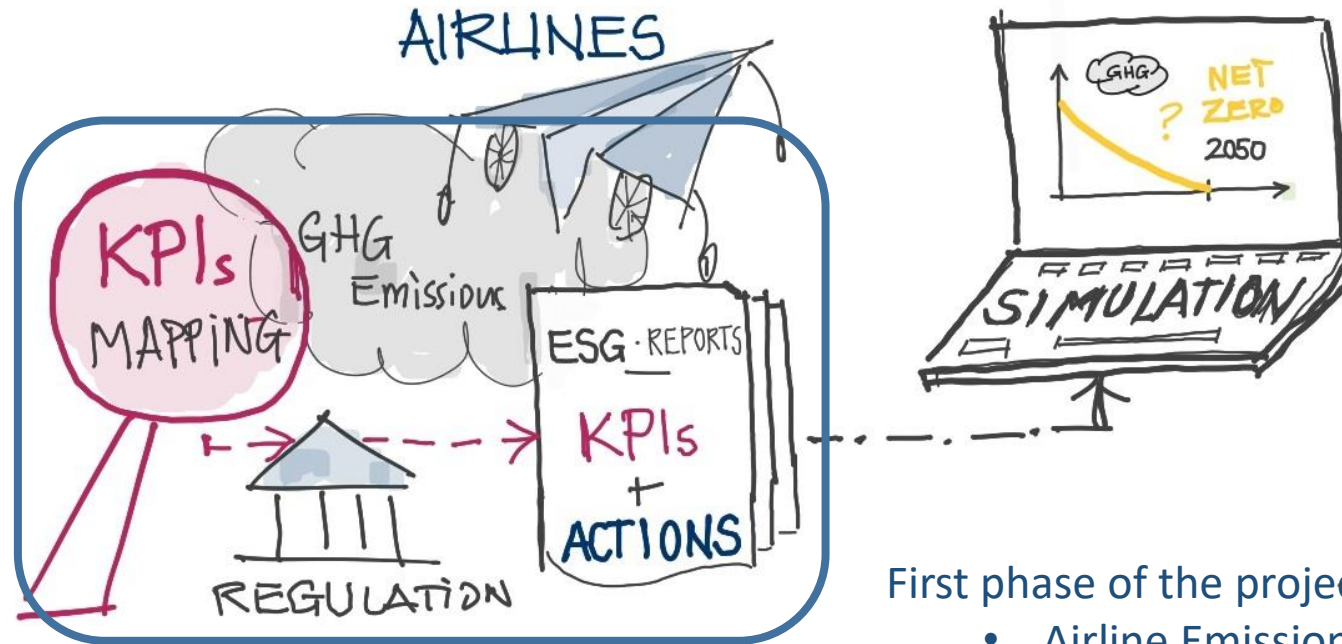
# Aviation Zero Emissions 2050 (AZERO) Project



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# Aviation Zero Emissions 2050 (AZERO) Project



First phase of the project:

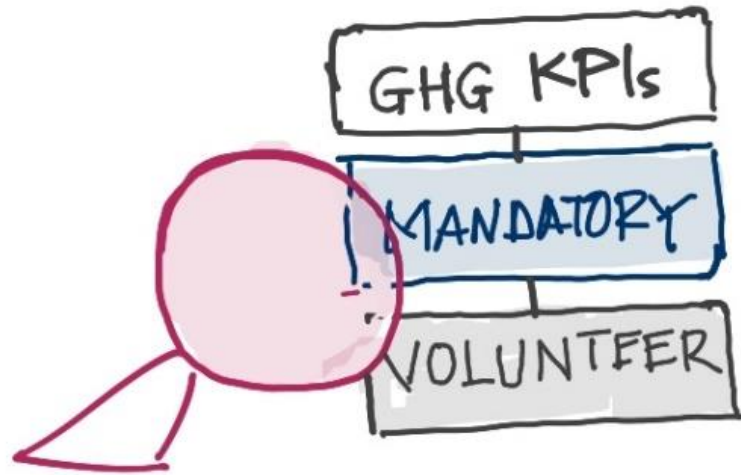
- Airline Emission KPIs in the EU
- Annual reports as a data source



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# Objective



To map European airlines **mandatory** and **voluntary Greenhouse Gas (GHG) KPIs**

# Literature Review I – Challenges in ESG Reporting



**Lack of standardization** and comparability in **airline sustainability reporting**



ESG ratings are **central to investment**, and can be used as a **data source**



**Greenwashing & Greenhushing**

# Literature Review II: Schemes



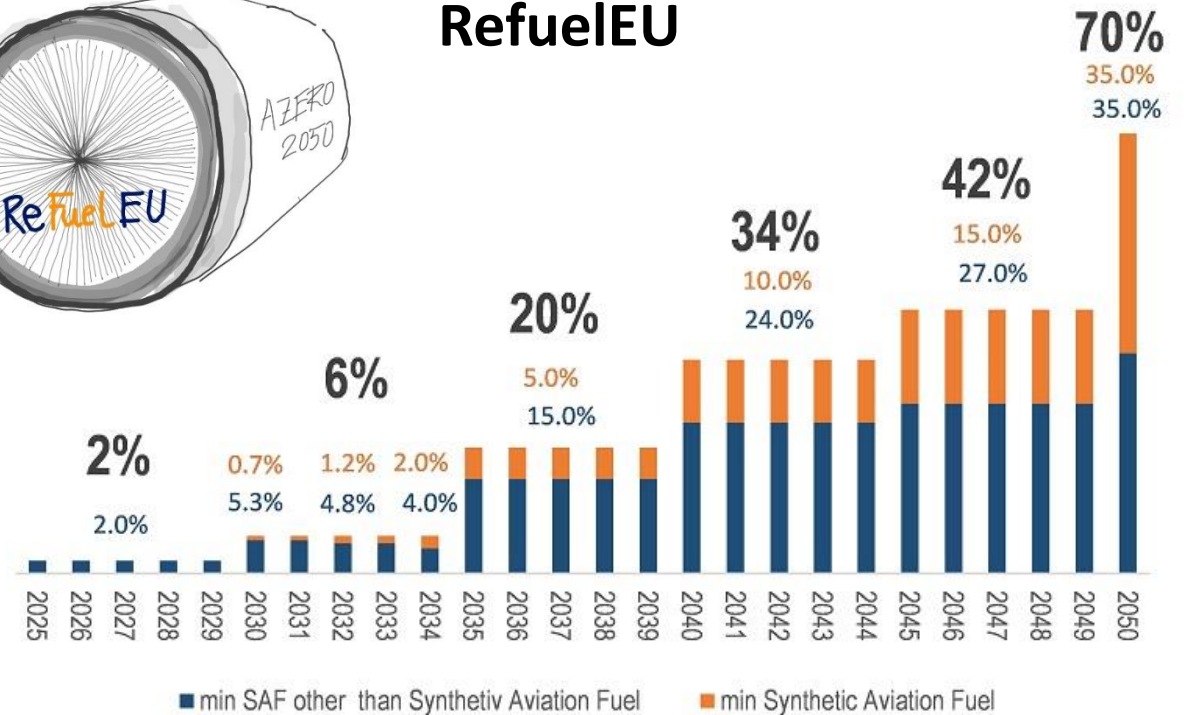
Cap-and-trade system in the EU



Global market-based offsetting for flights outside the EU



## RefuelEU



Mandated blending of Sustainable Aviation Fuels (SAF)

# Methodology



**Documentary analysis** of regulatory frameworks



**Identification** public European **airline groups**



Emission-related KPIs **manually** extracted using **structured content analysis** (Zieba and Johansson, 2022).

# Results I – Airline ESG Reports

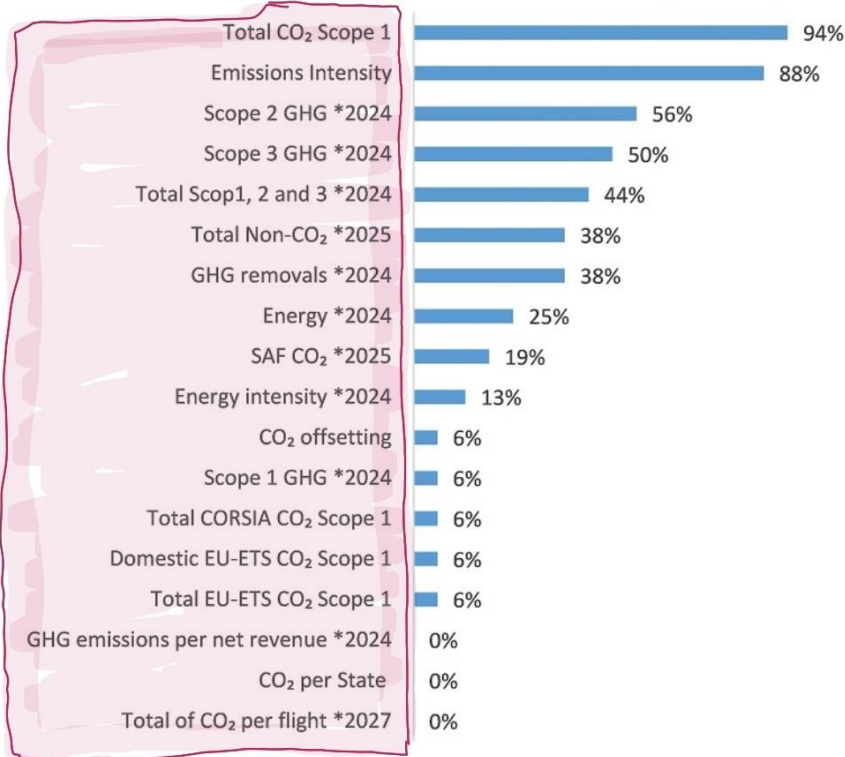
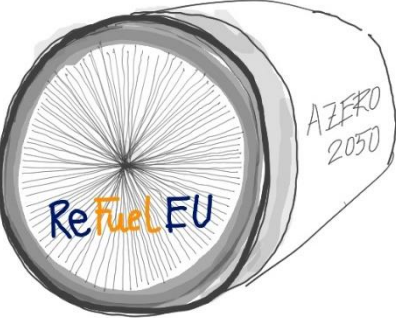


**16 European airline groups**



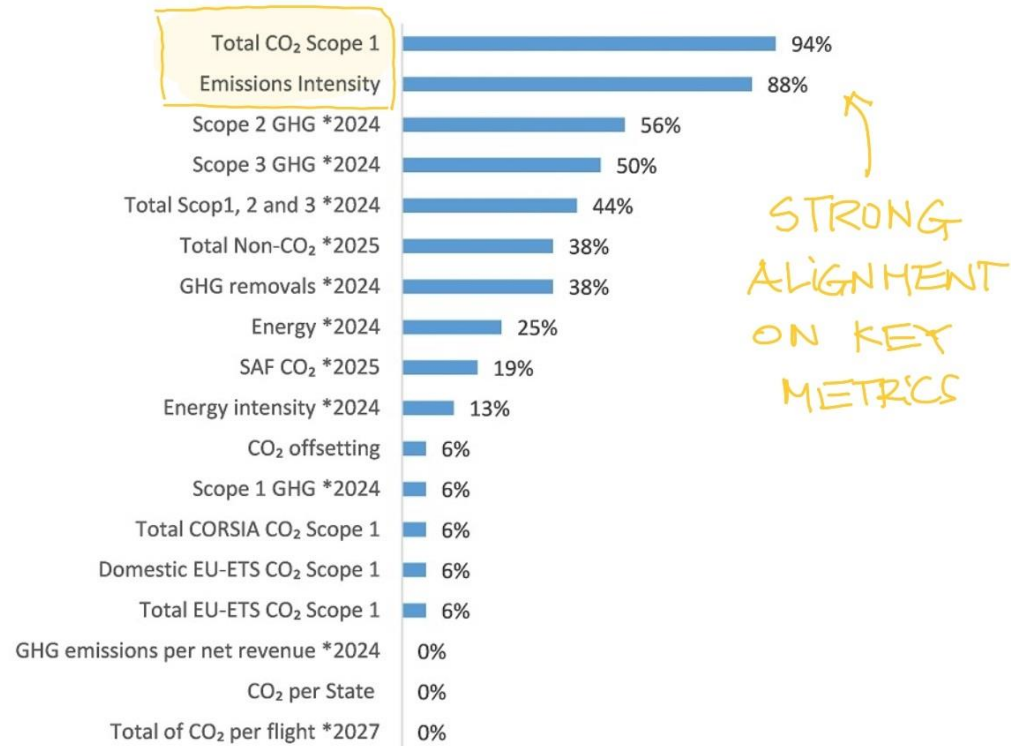
**Lack of standardization** continuous after 20 years  
Hooper, P. D., & Greenall, A. (2005)

# Results II - Mandatory KPIs - 1 of 3



18 MANDATORY environmental KPIs

# Results II - Mandatory KPIs - 2 of 3



18 MANDATORY environmental KPIs

# Results II - Mandatory KPIs - 3 of 3

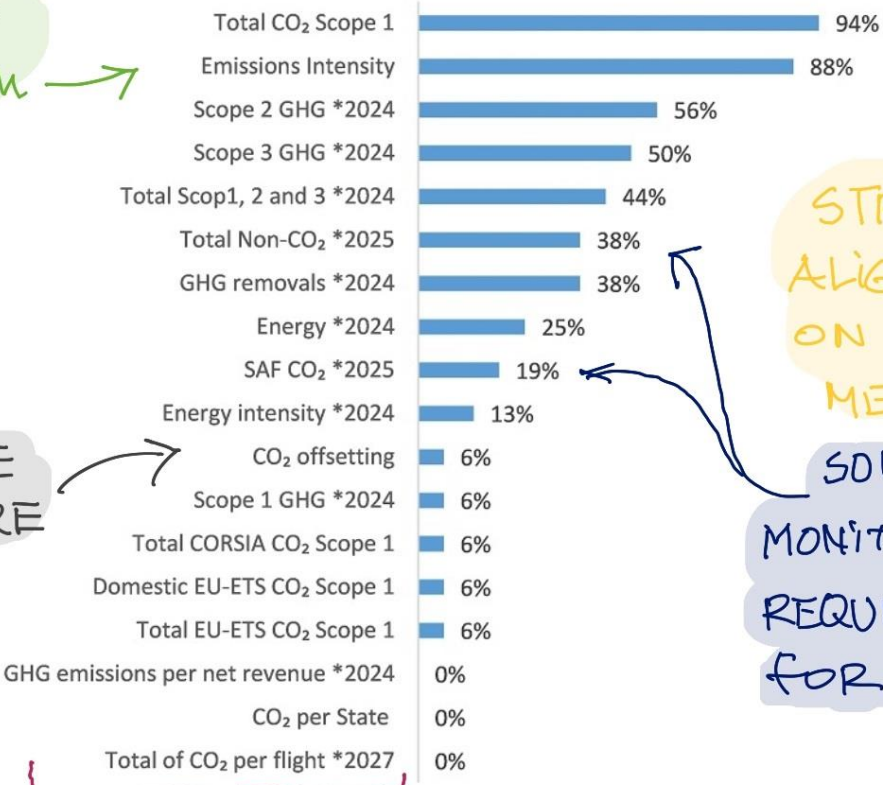
SELECTIVE EMPHASIS on →



WHILE INCOMPLETE DISCLOSURE →



18 MANDATORY environmental KPIs



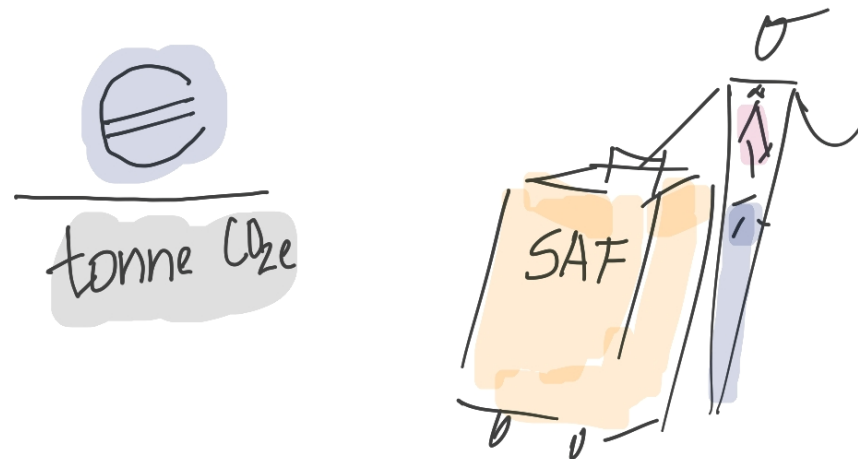
STRONG ALIGNMENT ON KEY METRICS

SOME STARTED MONITORING REQUIREMENTS FOR 2025

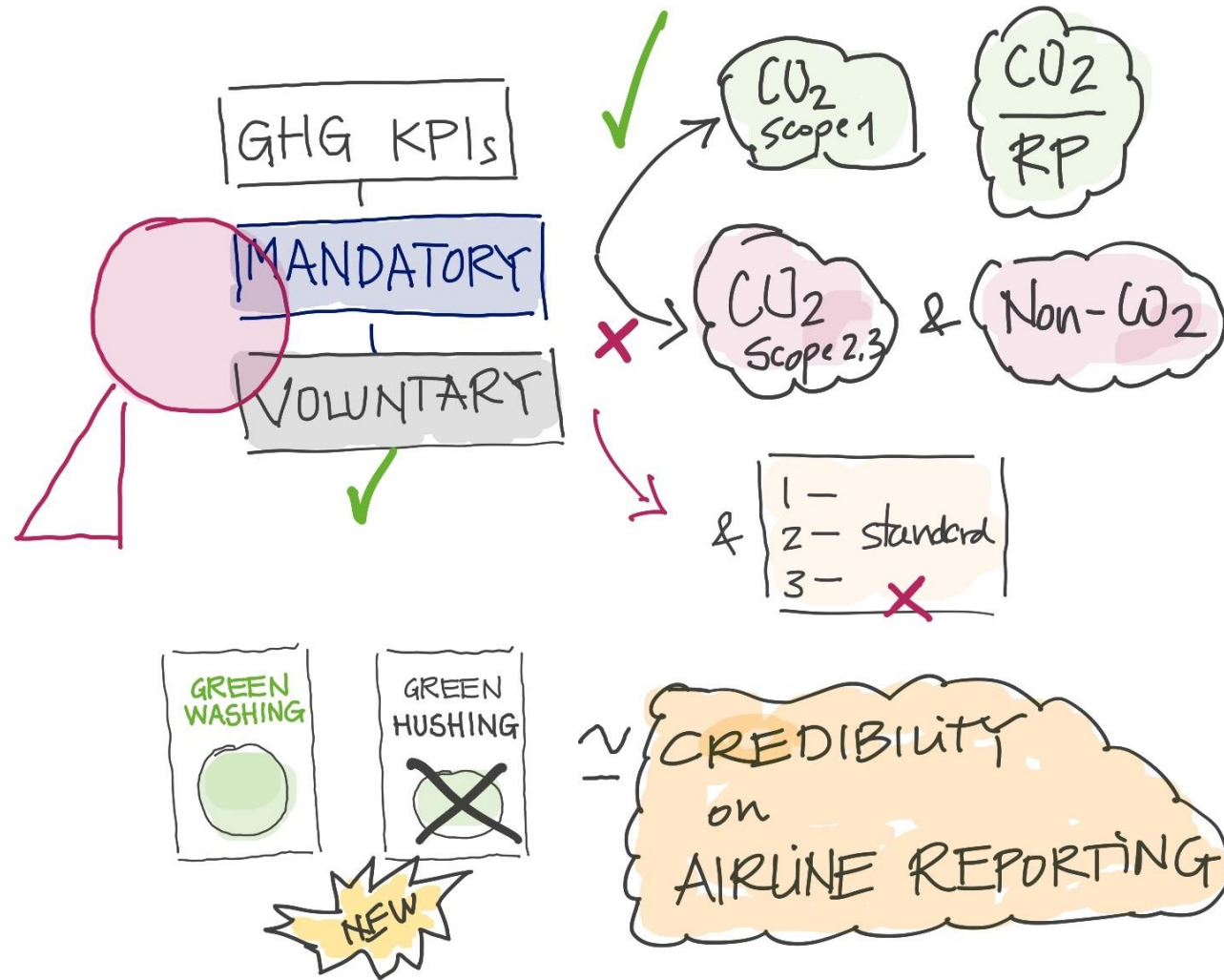
# Results III – volunteer KPIs



ID	KPI	Unit	Airline Group
A	Offsetting CO <sub>2</sub> by Customers	thousand tonnes	Lufthansa
B	Offsetting CO <sub>2</sub> by Lufthansa Group for own business trips1	thousand tonnes	Lufthansa
C	Scope 1 CO <sub>2</sub> emissions with voluntary offsets by customers (CHOOOSE)	tCO <sub>2</sub>	Wizzair
D	Sustainable Aviation Fuel, Customer purchases (CO <sub>2</sub> emissions reductions)	tonnes of CO <sub>2</sub>	Finnair
e	SAF under voluntary market (Biogenic Emissions)	tCO <sub>2</sub> e	Norwegian
F	Revenue per tonne CO <sub>2</sub> e	€/tonne CO <sub>2</sub> e	IAG
G	Total GHG emission per output scaling factor	tCO <sub>2</sub> e per FTEs	Icelandair



# Conclusions I:



# Conclusions II



# Full content will be available soon



## Environmental and Sustainability Indicators

Available online 7 November 2025, 101008

In Press, Journal Pre-proof  [What's this?](#)



# Airline Sustainability Reporting in Europe: Progress, compliance and challenges

Luis Martín-Domingo<sup>1,2</sup>, Marina Efthymiou<sup>1</sup>, Miguel Mújica-Mota<sup>3</sup>

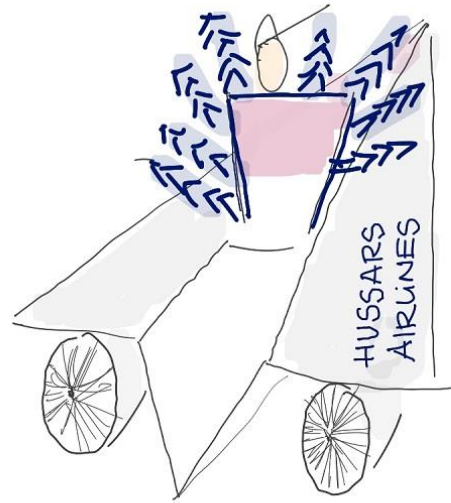
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Lazarski  
University

WARSAW  
POLAND

**Thank you**



**Luis Martín-Domingo<sup>1, 2\*</sup>**

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