ICAO EUR/NAT and ACI EUROPE

REGIONAL GREEN AIRPORTS SEMINAR

Hosted by the Ministry of Transport
Republic of Kazakhstan

ICAO

Day 2 - Implementing Sustainability Strategies

Sustainable Operations and Infrastructures

AIRPORTS COUNCIL INTERNATIONAL

David Brain

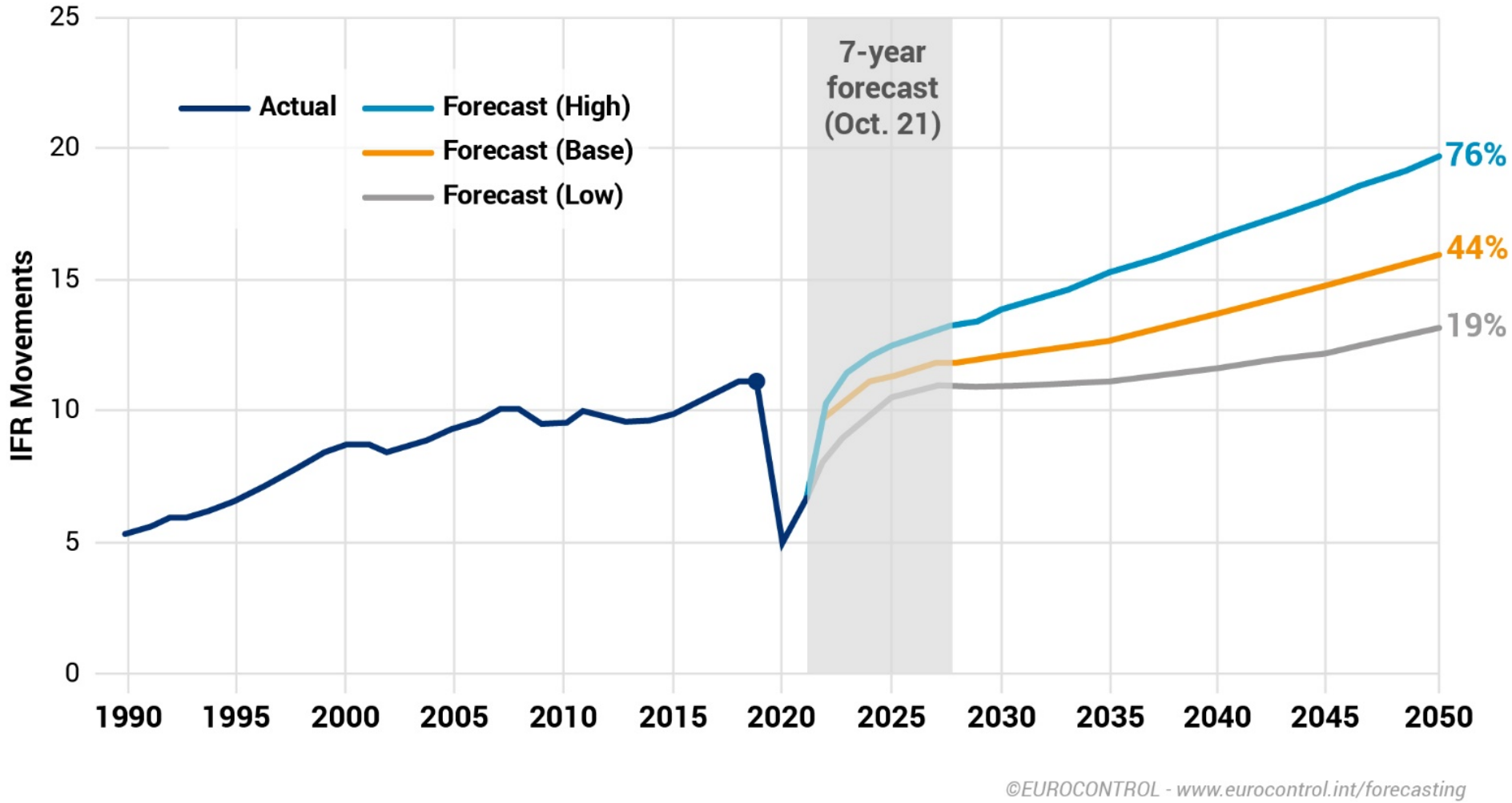
ICAO Coordinator, EUROCONTROL

The Challenge Ahead for Sustainable Growth

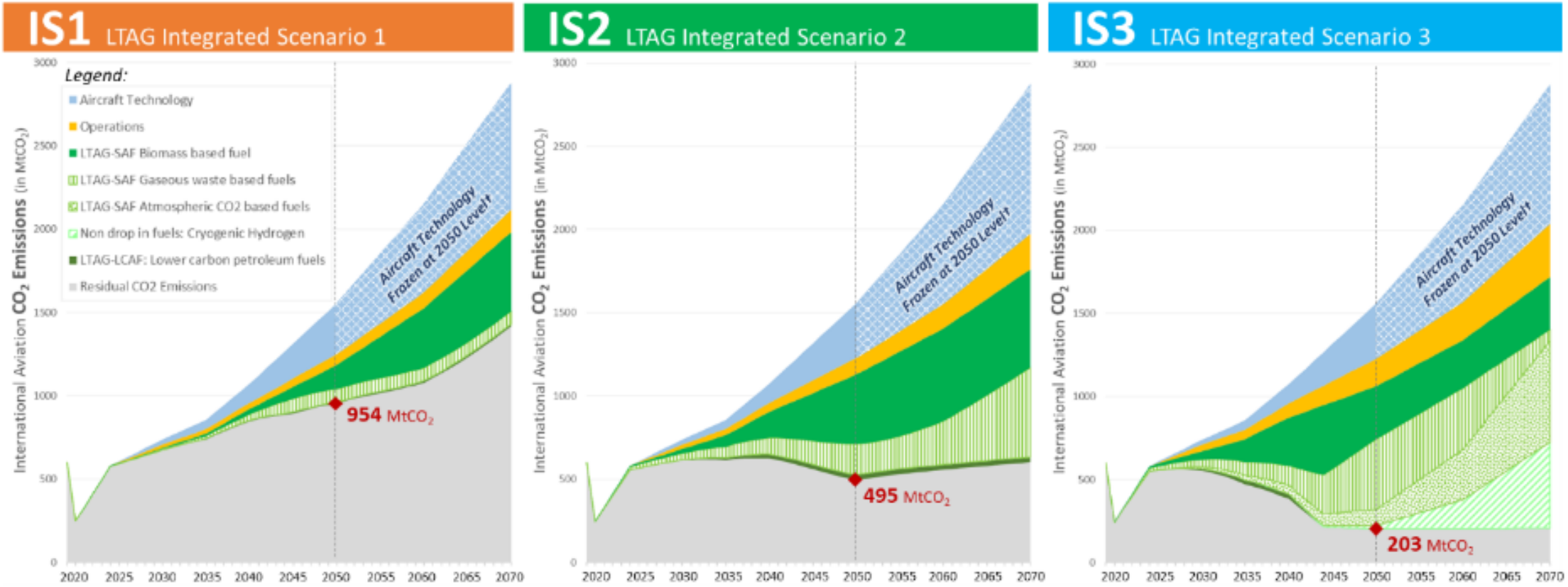
2050
IFR Movements

16 million flights
ECAC

+44%
vs. 2019
Source: Eurocontrol



ICAO LTAG Report results



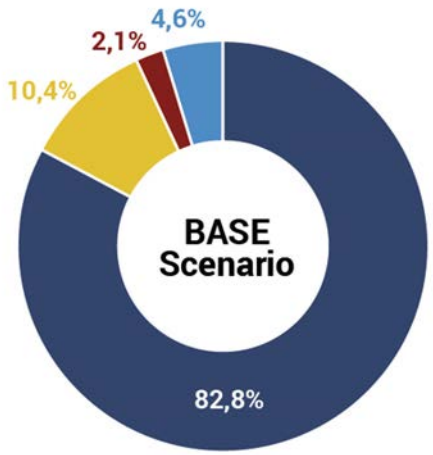
† Caution required with the interpretation of absolute CO_2 emissions levels after 2050 due to modelling assumptions e.g., frozen aircraft technology after 2050. Under these assumptions, CO_2 emissions are higher than in an alternative scenario (and modelling approach) where aircraft technology would continue to improve after 2050.

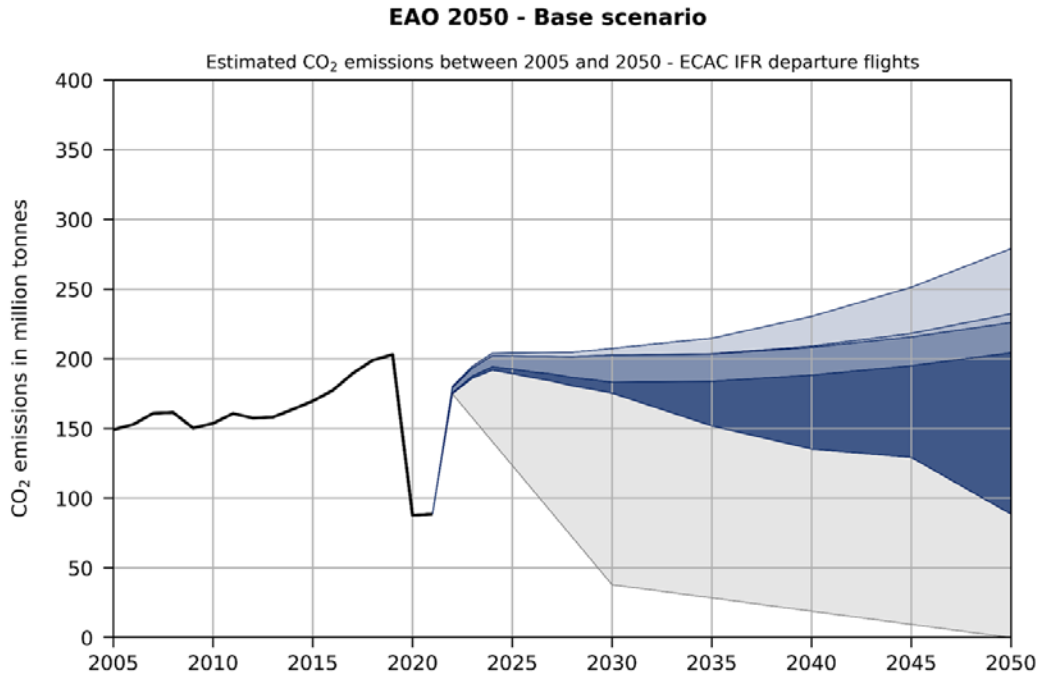
Figure 1. CO_2 emissions from international aviation associated with LTAG Integrated Scenarios

https://www.icao.int/environmental-protection/LTAG/Documents/REPORT%20ON%20THE%20FEASIBILITY%20OF%20A%20LONG-TERM%20ASPIRATIONAL%20GOAL_en.pdf

ATM contribution by 2030 – Objective Skygreen

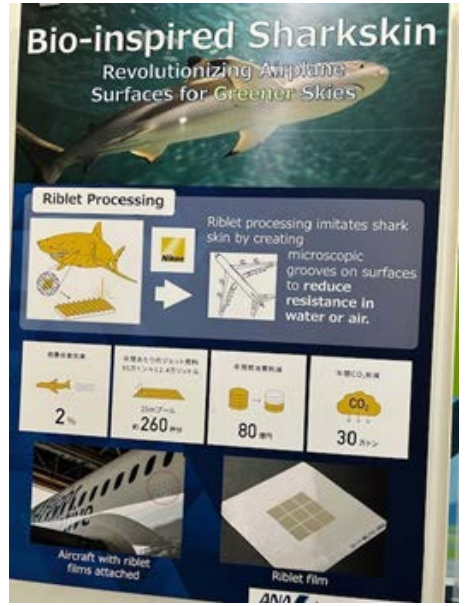
- EU proposing an intermediate target of a 55% CO_2 reduction by 2030 compared to 1990 levels.





Source - https://www.eurocontrol.int/publication/objective-skygreen-2022-2030

ATM / Operations – no silver bullet

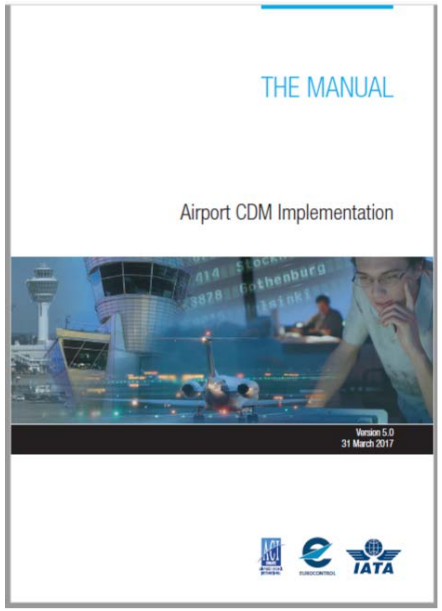


What are “OPERATIONS”?

ATM

Aircraft operator actions

Airspace design



Flight planning activities

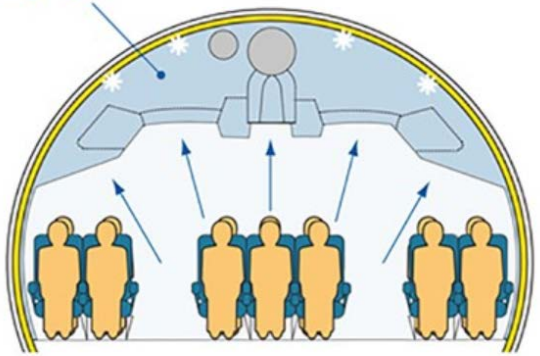
Ground operations

Aircraft Operator / CFSP actions

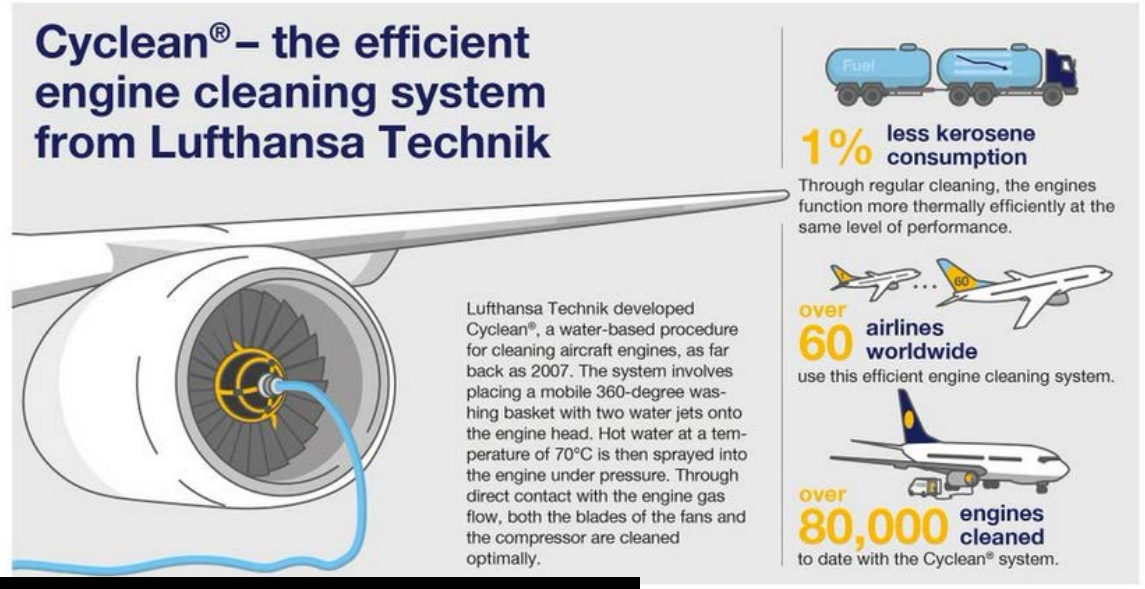
Water on the plane

Condensation During Flight

Rain in the plane
Extra weight
Electrical failures
Corrosion
Aircraft reliability
Increased costs
Safety concerns



Humid air from passengers (blue arrows) condensate out in form of frost on the cold fuselage structure and skin. The frost melts during descend and water is partly accumulated in the insulation

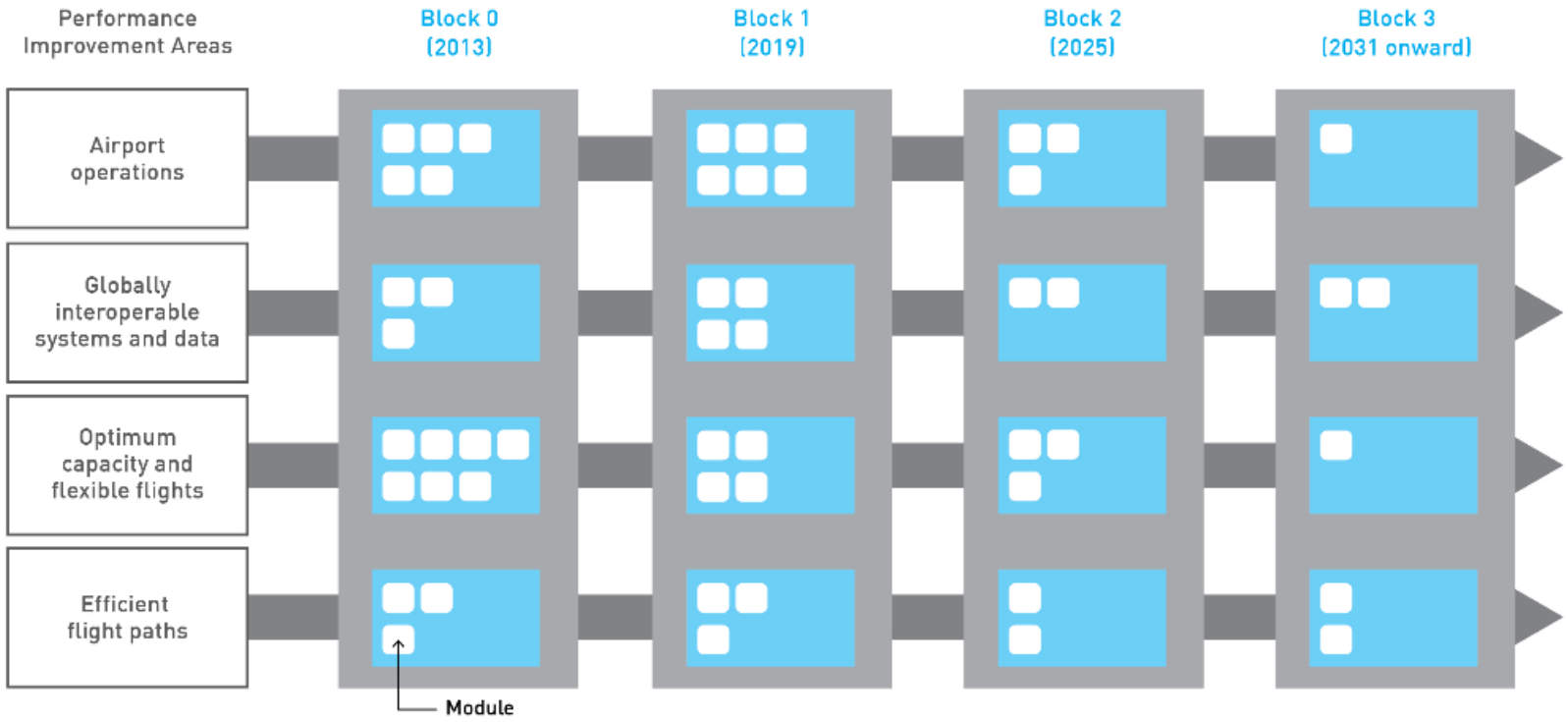


Air Traffic Management (ATM)

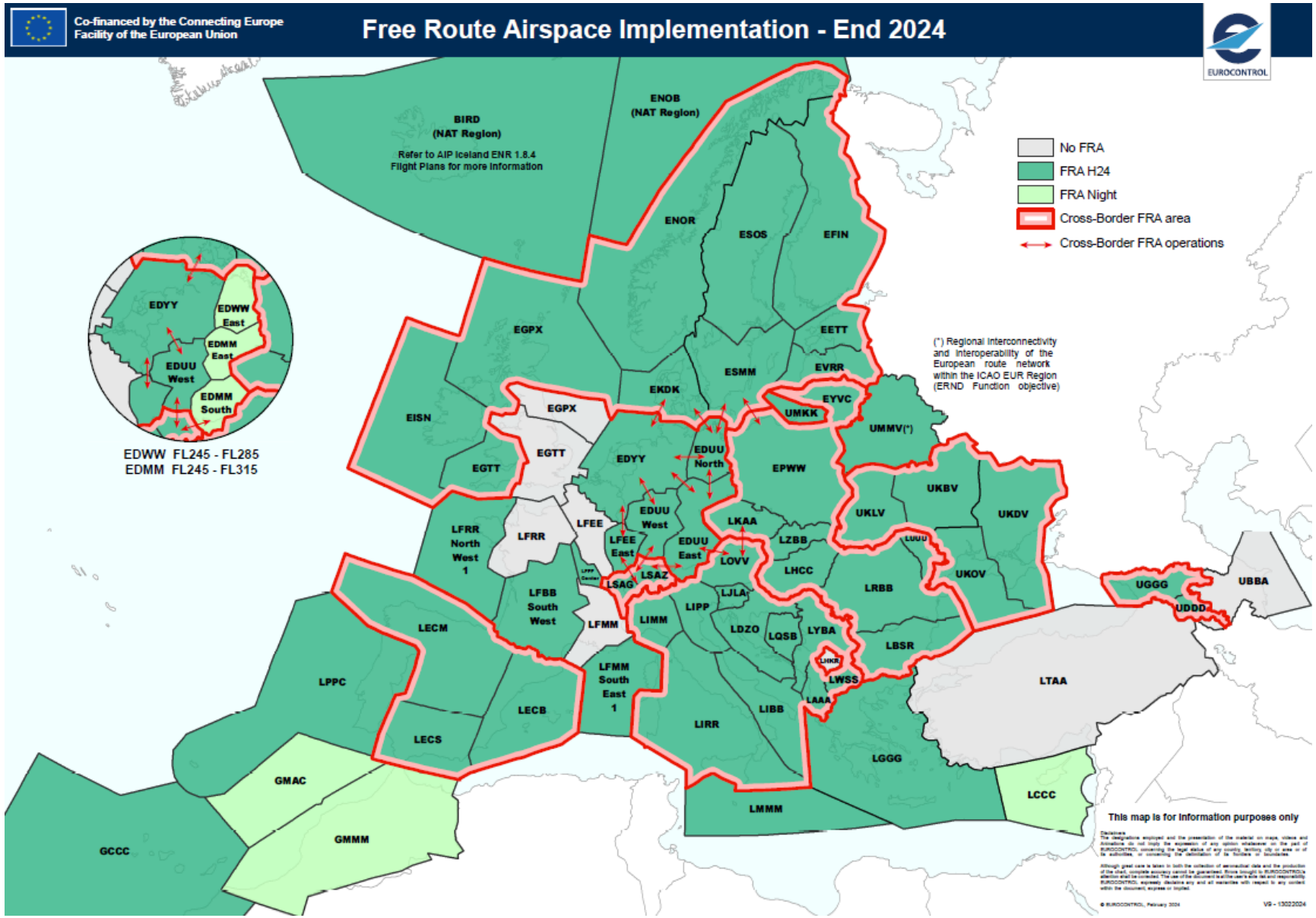
ICAO initiated the Aviation System Block Upgrade (ASBU) initiative as a programmatic framework that:

- **Develops a set of Air Traffic Management (ATM) solutions or upgrades**
- **Takes advantage of current equipage**
- **Establishes a transition plan, and**
- **Enables global interoperability**

Outlined in *ICAO Global Air Navigation Plan (Doc. 9750)*

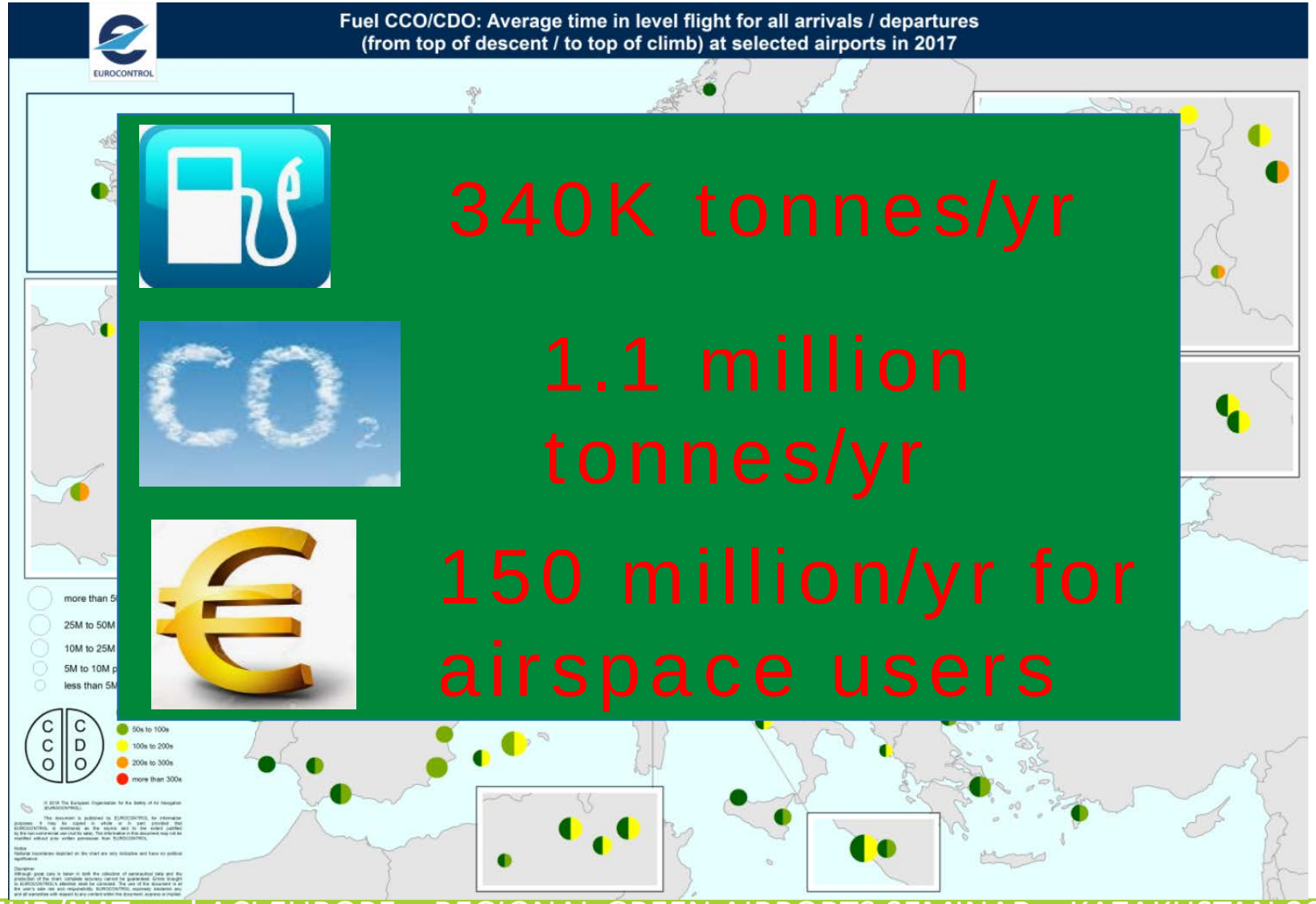


Free Route Airspace (FRA)



Continuous Descent Operations (CDO)

European CCO / CDO TF

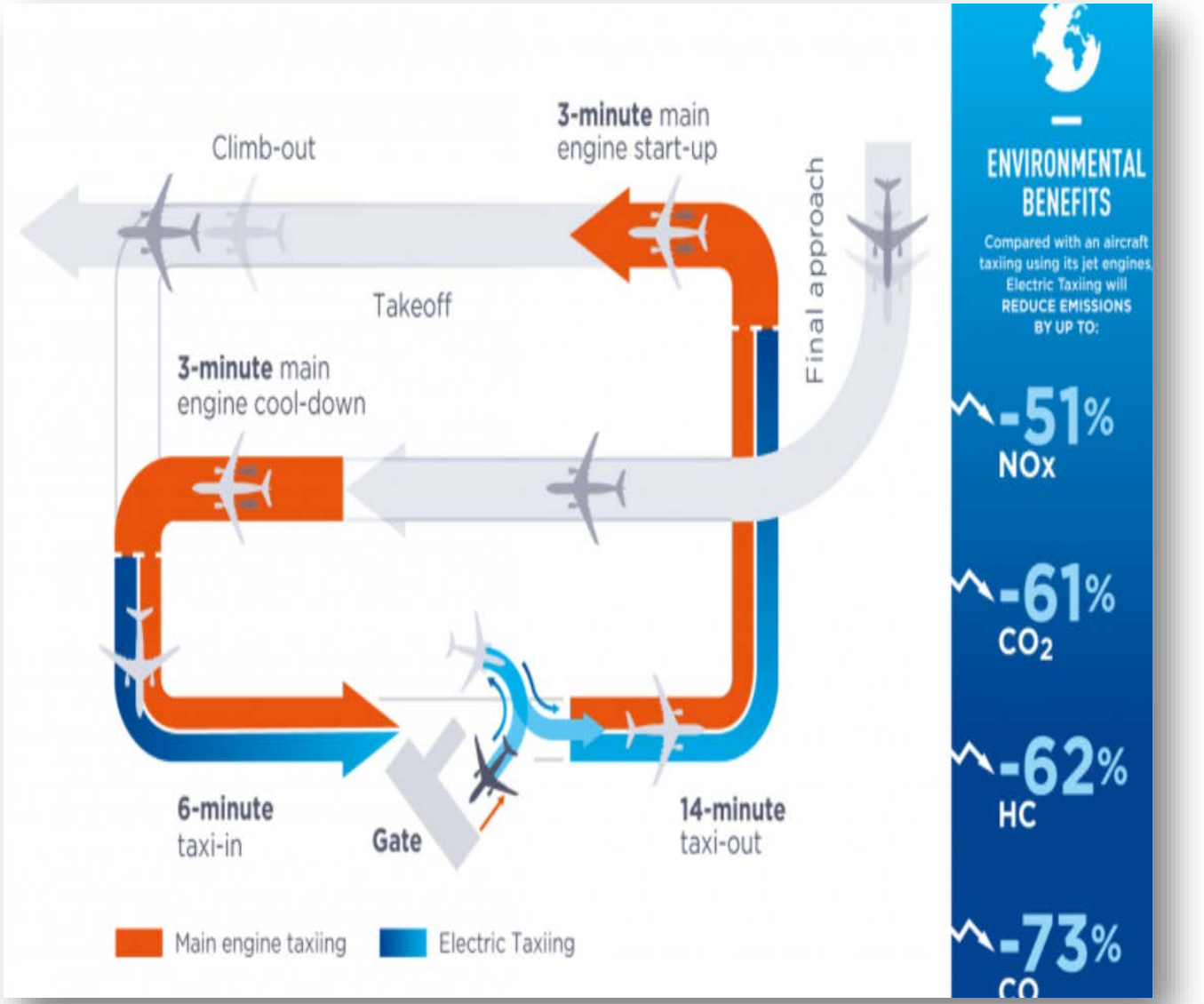


Continuous Descent Operations (CDO)

APPENDICES:

https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations#action-plan

Airport Operator actions



Future ATM – Trajectory Based Operations

ADS-C EPP operational @ MUAC

Showcase flight efficiency benefits

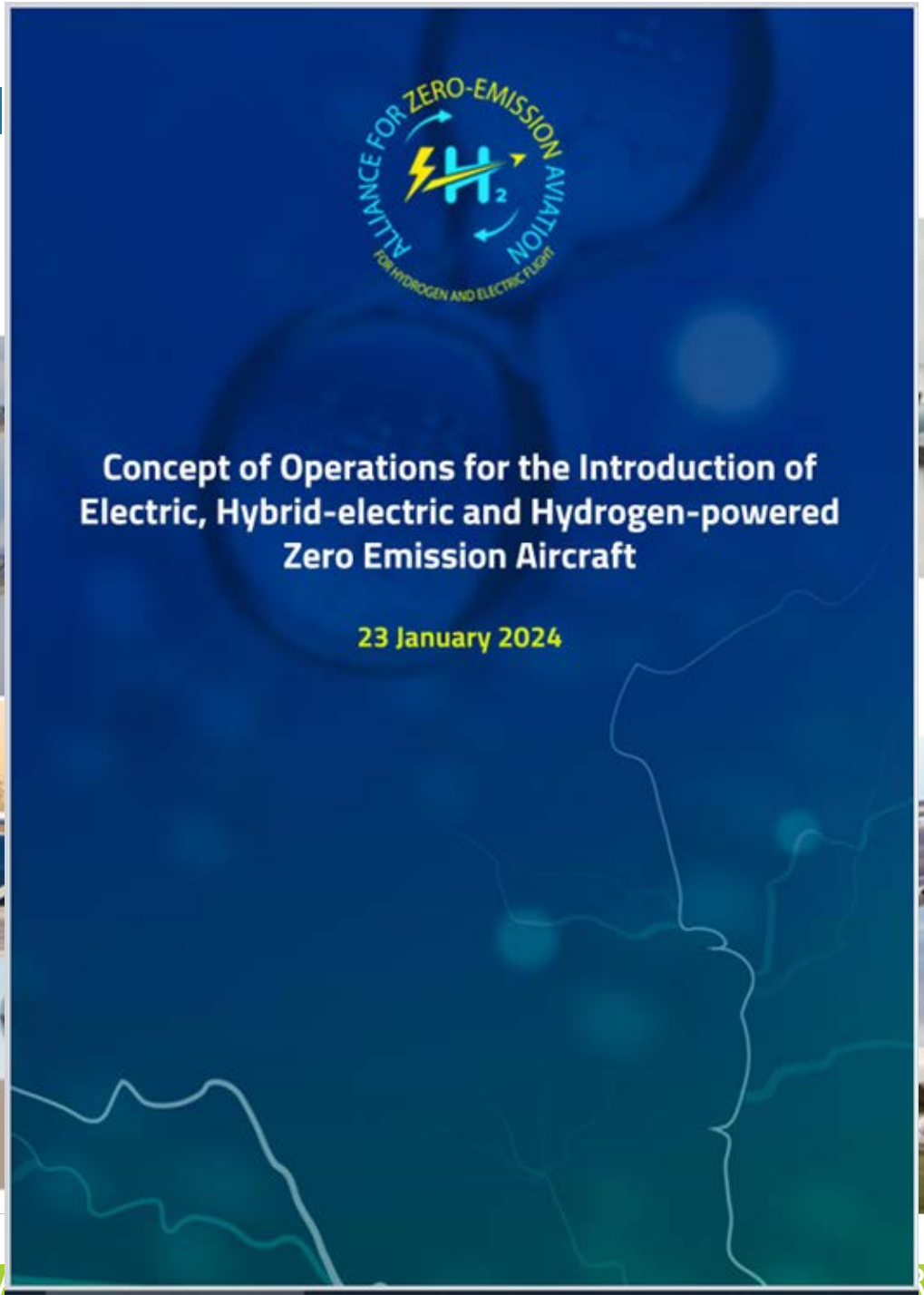
1. ToC display ⟶ earlier direct routing – earlier clearance to RFL – CCO: 12-35 kg of fuel savings / flt

2. ToD & optimum descent profile display ⟶ more miles at cruising level – optimum descent – CDO: 10-24 kg of fuel savings / flt

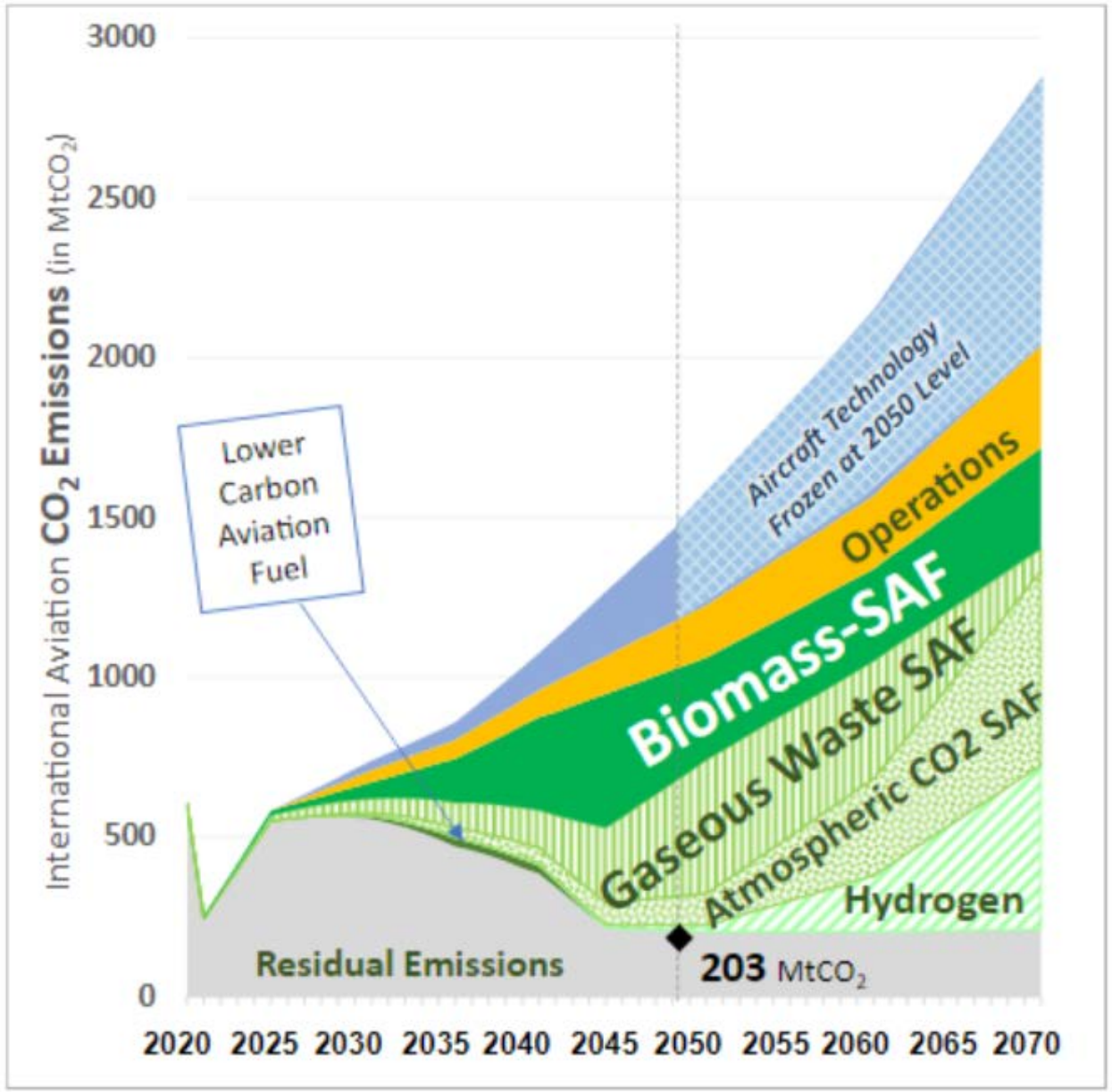
Future concepts – Formation flight

New chall


VÆRIDION


ALLIANCE FOR ZERO-EMISSION AVIATION
FOR HYDROGEN AND ELECTRIC FLIGHT
Concept of Operations for the Introduction of Electric, Hybrid-electric and Hydrogen-powered Zero Emission Aircraft
23 January 2024

Operational mitigations



Collaboration and partnership to deliver the pool of benefits

SUPPORTING EUROPEAN AVIATION

Thank You

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