Report on "Sustainable Airport Platform"

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1 Executive summary

This report guides us through the main discussions addressed within the Sustainable Airport Platform (SAP), a key initiative of the ALIGHT project under the EU Horizon 2020 programme. SAP was designed to foster collaboration among airports, aviation stakeholders, and sister EU projects to accelerate the adoption of Sustainable Aviation Fuels (SAF) and support broader airport decarbonisation strategies.

Between 2022 and 2025, SAP convened a diverse network of participants from across Europe and beyond, facilitating knowledge exchange, strategic alignment, and the development of practical tools.

The report highlights several core topics discussed in the course of the SAP meetings:

- **SAF supporting airport sustainability** (Chapter 1): Through the different meetings held it was discussed a framework for understanding the airport's role in the SAF value chain, identifying challenges, and proposing actionable solutions.
- **Workshops and Strategic Engagement** (Chapters 3, 4 and 5) : SAP hosted multiple sessions, including the Bold Vision Workshop, which explored future airport models for 2050, and meetings focused on SAF incentives, sustainability certification, and non-CO_2 emissions.
- **Non-CO_2 Climate Impacts** (Chapter 5) : The platform advanced the conversation on aviation's non-CO_2 effects, showcasing SAF's potential to reduce contrail formation and particulate emissions, and calling for improved monitoring and policy integration.
- **Decarbonisation Tools and Best Practices** (Chapter 6) : SAP introduced digital modelling tools like Boeing's Cascade and ICAO's SAF resources, and supported the creation of handbooks and self-assessment checklists to guide airports in implementing SAF and tracking emissions.
- **Book & Claim System** (Chapter 6.3) : The RSB Book & Claim system was presented as a scalable solution for SAF accounting, enabling emissions reductions to be claimed even when SAF is not physically delivered to a specific flight.

By guiding us through these discussions, the report demonstrates how SAP has laid the foundation for long-term transformation in airport sustainability. Its inclusive and forward-thinking approach ensures that the aviation sector is better equipped to meet climate goals and lead the transition to a low-carbon future.

2 Sustainable Airport Platform

2.1 Introduction

The Sustainable Airports Platform (SAP), coordinated by RSB, has served since 2022 as a collaborative forum for airports and the wider aviation sector to exchange knowledge, align strategies, and explore practical solutions for accelerating sustainable aviation.

SAP has attracted participants from ALIGHT, TULIPS, STARGATE, OLGA and leading airports such as Seattle Tacoma and San Francisco, positioning it as a valuable hub for international cooperation. The outcomes of SAP discussions between 2021 and 2022 were consolidated in the "Sustainable Guidance for Airports" (Deliverable D6.1), which provides actionable insights for the airport community to understand their role in supporting SAF uptake and achieving sustainability goals. Recognising its value, SAP continued after 2022 under WP7 about cooperation activities , ensuring its continued development and alignment with ALIGHT's objectives. The platform's work on topics such as Non-CO_2 impacts, SAF chain of custody, community engagement, and incentive schemes have strengthen the project's impact, enhance ALIGHT's visibility, and it has provided partners with a competitive advantage in sustainable aviation leadership.

2.2 Participants

Participation in the Sustainable Airports Platform (SAP) was fostered through four main outreach channels:

- Partners of the ALIGHT consortium.
- Partners of the EU H2020 sister project consortia: TULIPS[1], STARGATE[2] and OLGA[3]
- The network of relevant stakeholders established within RSB membership.
- Social media reach out through the ALIGHT webpage and RSB network.

This approach brought together a diverse group of participants, comprising 36 individuals from the ALIGHT consortium, 12 from the EU H2020 sister projects, and 17 external participants. Significantly around 40% of the participants came from outside the ALIGHT project, offering new perspectives and new ideas to the discussions. The largest stakeholder group represented was from the airport sector and the second-largest group consisted of representatives from research and innovation, ensuring the workshop maintained a forward-thinking approach beyond the current state of the art.

Other stakeholder groups included technology providers, associations, NGOs, and regulatory bodies. Participants represented nine European countries, and an online presentation by the

[1] https://tulips-greenairports.eu/
[2] https://www.greendealstargate.eu/
[3] https://www.olga-project.eu/

National Civil Aviation Agency of Brazil (ANAC) added a valuable global dimension, broadening the perspective beyond Europe.

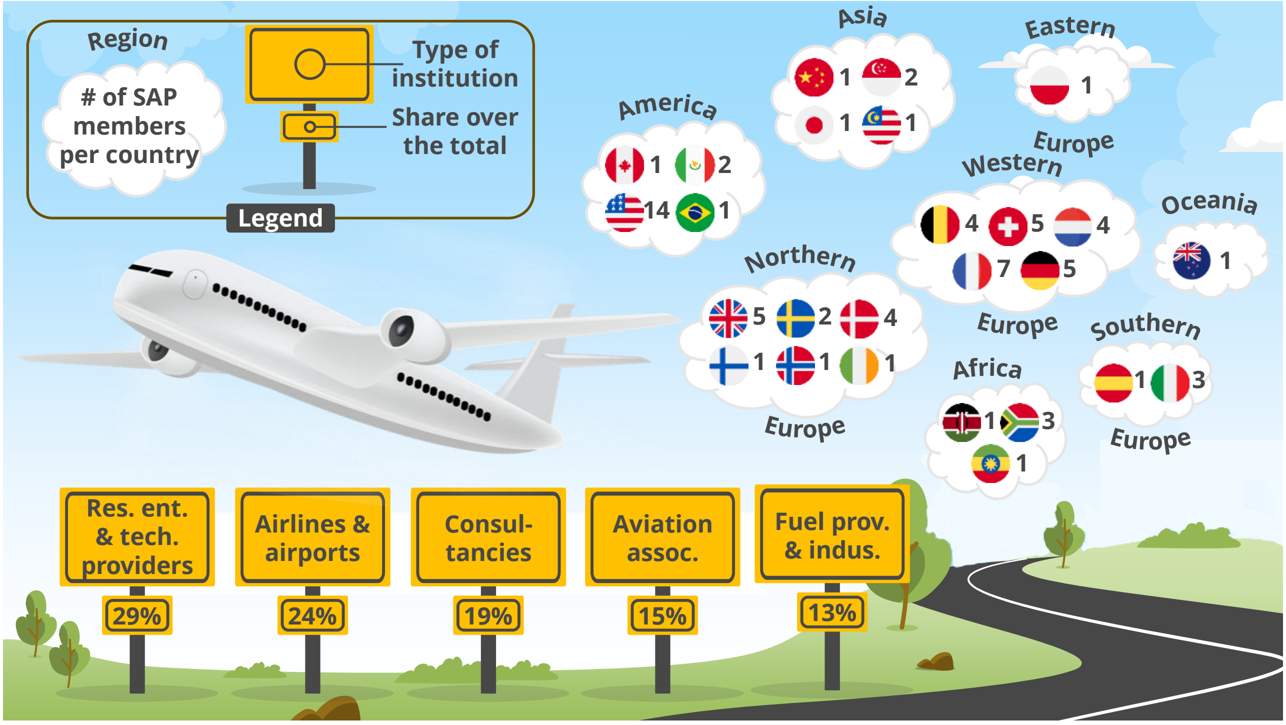

Figure 1. Number of SAP members per country and region (RSB, 2025)

As illustrated in Figure 1, Europe stands out as the most diverse and populous continent within SAP , comprising a wide range of up to 65 members from 14 countries. Northern and western Europe — including France, Germany, Switzerland, and the United Kingdom — have the strongest presence, each with five or more members. In contrast, eastern and southern European countries are underrepresented, with only one to three members each. Beyond Europe, Oceania is represented by one member from New Zealand, while the Americas and Asia together include four countries, with the United States contributing a notable 14 members and the others one or two each. In Africa, South Africa leads with three members among the continent's three represented countries. Overall, the 65 SAP members (Figure 2) span five main institutional categories: research institutions and technological providers, and airlines and airports — together forming more than half the membership — while fuel providers and industry represent 13%. Consultancies (14 members) and aviation associations (11 members) are also well represented, creating a balanced mix of perspectives and expertise.

Figure 2 SAP members by organization (RSB, 2025)

2.3 Agenda SAP meetings

Between 2022 and 2025, the SAP has focused on a strategic agenda addressing key challenges and opportunities in decarbonization, circular economy practices, and the integration of sustainable aviation fuels (SAF). This section outlines the main topics discussed during this period, highlighting the platform's role in fostering innovation, knowledge exchange, and coordinated action towards a more sustainable aviation ecosystem.

Table 1 SAP meetings agenda 2022-2025

Topic	Date
Sustainable Airport Platform session at the RSB Innovation Meeting (Boston, USA)	October 2022
SAF Sustainability Guidance launch and Agenda for 2023	November 2022
SAP session during RSB Ports meeting (Copenhagen, DK)	March 2023
Understanding non-CO2 impact of SAF for airports and communication	April 2023
Tools help decarbonisation aviation sector	October 2023
SAF incentives schemes	November 2023
Non-CO2 emissions case study report	April 2024
SAF Sustainability guidance for airports	September 2024
Bold Vision for airports 2050 (Copenhagen, DK)	October 2024
Addressing Non-CO2 emissions in aviation	February 2025
Best practices handbook and tools for fuel handling	April 2025
Supporting airport sustainability with B&C systems	May 2025
Social benefits related to SAF use	Planned Q 2025
Final meeting SAP	Planned Q4 2025

The knowledge generated through this engagement related to SAF awareness, communication, and sustainability is summarised below and is meant to be utilised by the airport community globally as a guidance to improve understanding of SAF sustainability and guide decision-making around the role airports want to play in the SAF economy.

3 SAF supporting airport sustainability

3.1 SAF sustainability guidance for airports

In November 2022, during a dedicated SAP meeting, the Roundtable on Sustainable Biomaterials (RSB) presented the SAF Sustainable Guidance for Airports (D6.1) . This public report was introduced to highlight the strategic role airports can play in accelerating the deployment of Sustainable Aviation Fuels (SAF) and supporting aviation's broader decarbonisation goals.

The guidance is structured around four key themes: the current role of airports in the SAF value chain, integration of SAF into airport sustainability strategies, quantification of GHG emissions reductions, and the importance of raising passenger awareness. It identifies both challenges—such as limited supply, infrastructure gaps, and unclear responsibilities—and opportunities, including policy incentives, collaboration, and integration into climate targets.

Crucially, the report includes a set of practical tools designed to support airport decision-making and capacity building. These include:

- **A communication strategy** tailored to airport audiences, channels, and messaging needs.
- **A passenger awareness survey** conducted at Rome Airport, offering insights into public perceptions of SAF.
- **A communication toolkit** featuring SAF facts, sustainability criteria based on RSB's 12 Principles, GHG intensity data, airport emissions calculation guidance, and policy incentive summaries.

RSB emphasized the importance of disseminating these tools widely across the airport community which will be included in Replication Toolbox developed in WP8 in D8.4 and D8.5. Strengthening airport knowledge and operational readiness is essential to accelerate SAF adoption, foster strategic planning, and ensure airports are equipped to lead in aviation's transition to net-zero emissions.

3.2 SAF incentives schemes

Sustainable Aviation Fuel (SAF) remains a cornerstone of the aviation sector's decarbonisation pathway, yet its widespread adoption continues to depend on robust incentive schemes, collaborative efforts, and practical pilot projects. Within the ALIGHT project, the exchange of knowledge with sister initiatives such as TULIPS and STARGATE has been essential to identify effective approaches for stimulating SAF uptake at European airports.

In November 2023 during the SAP meeting about SAF incentives schemes, TULIPS presented the main outputs of their project with particular emphasis on its Work Package 5: Scaling up the SAF market. The session also included an overview of the expected European e-SAF supply chain, detailing regional differences and production forecasts for 2030 and 2050. Building on this context, several actions were highlighted to advance SAF incentivisation.

These included case studies of airport involvement in SAF (Figure 3), distinguishing between producer and consumer roles; the establishment of a cooperation platform through workshops, the first of which was held in December 2022 with a follow-up planned to share results; and awareness-raising initiatives aimed at passengers, supported by a voluntary survey.

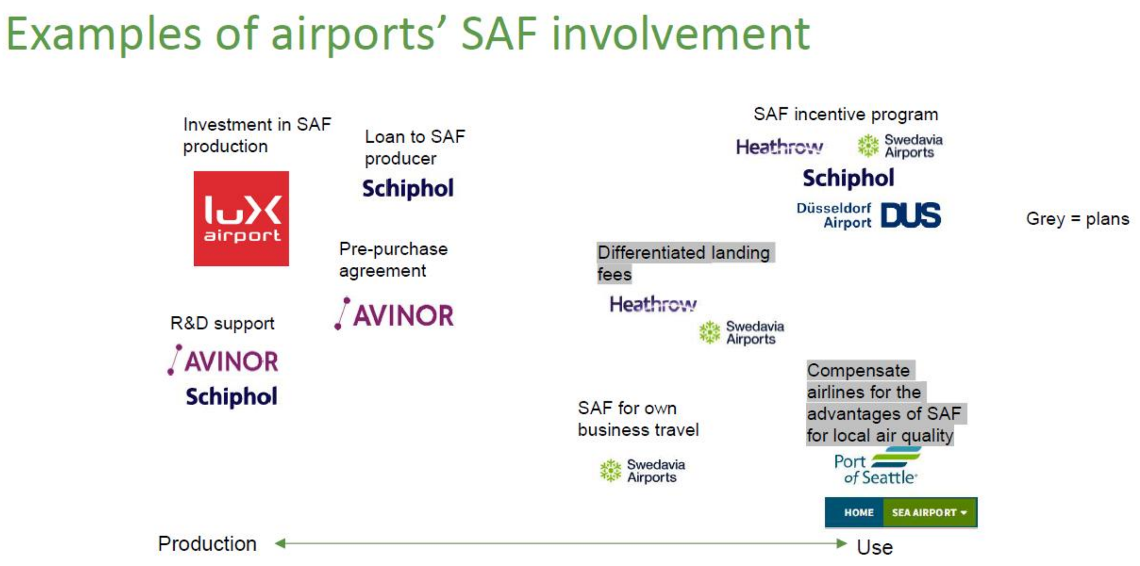

Figure 3 Examples of airport´s SAF involvement (Avinor, 2023)

STARGATE's contributions centred on practical measures to enable SAF adoption. These included on-site blending, the use of high-blend SAF on selected flights, and the development of new initiatives such as the SAF catalogue and pilot project. The catalogue provides a structured set of actions to stimulate uptake, grouped into measures for increasing SAF use (e.g. differentiated airport charges), raising awareness (e.g. advertising campaigns), and strengthening airport leadership (e.g. stakeholder engagement and policy dialogue). The pilot project focused on joint SAF procurement for consortium travel, delivery to Brussels Airport, and allocation of scope 1 and 3 credits, with the aim of creating a replicable model (Figure 4).

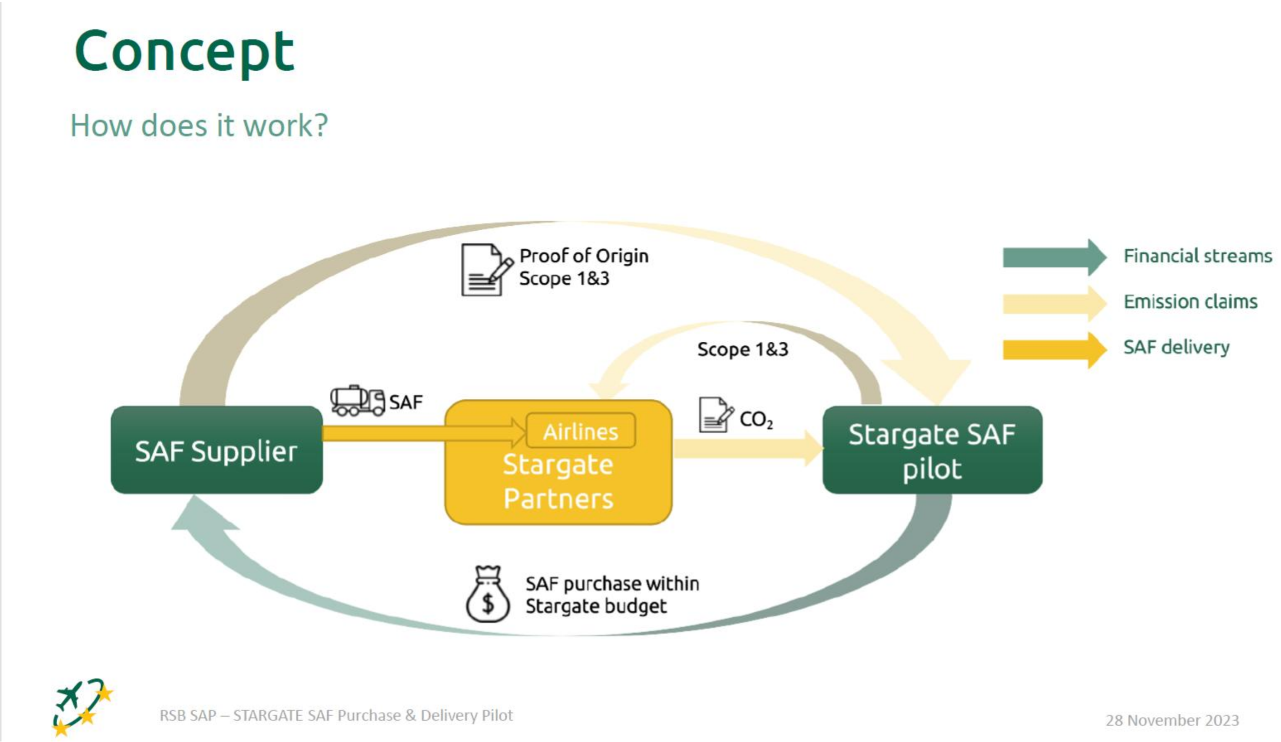

Figure 4 SAF incentive concept from STARGATE project (STARGATE, 2023)

While these efforts demonstrate progress, they also revealed challenges. Certification processes require coordination among multiple actors; logistics for transporting and supplying SAF remain complex; and administrative burdens are disproportionate to the small volumes currently available. Airlines highlighted the difficulty of securing SAF in meaningful quantities, while suppliers noted barriers to accessing fuel farms and trucking capacity. Key discussion points in the Q&A held during session included the need to integrate SAF into pipeline networks to ensure availability and the importance of avoiding double counting of scope 3 emissions in reporting. Reference was also made to ALIGHT's survey at Rome Airport, which was suggested as a useful example for similar passenger-focused data collection in TULIPS.

3.3 Understanding SAF sustainability certification

The webinar on SAF sustainability certification, held in September 2024 and co-hosted by IATA and RSB, offered valuable insights into the complexities of certifying and accounting for Sustainable Aviation Fuel across the aviation sector. The session was structured around two complementary presentations, each addressing critical aspects of the certification landscape from distinct stakeholder perspectives.

The first presentation, delivered by IATA, introduced the SAF sustainability certification guidance published in June 2024. This guidance was developed to address the growing complexity of SAF supply chains and the need for a harmonised framework that supports transparent certification, accurate accounting, and credible reporting. IATA highlighted the challenges faced by different actors in the aviation ecosystem. Airlines, for example, often struggle to identify which documents are required from SAF suppliers to substantiate environmental claims under regulatory schemes such as the EU Emissions Trading System (EU-ETS) or CORSIA (Figure 5) . Fuel suppliers, on the other hand, need clarity on certification procedures to issue recognised sustainability documentation, while national authorities require consistent standards to validate airline claims.

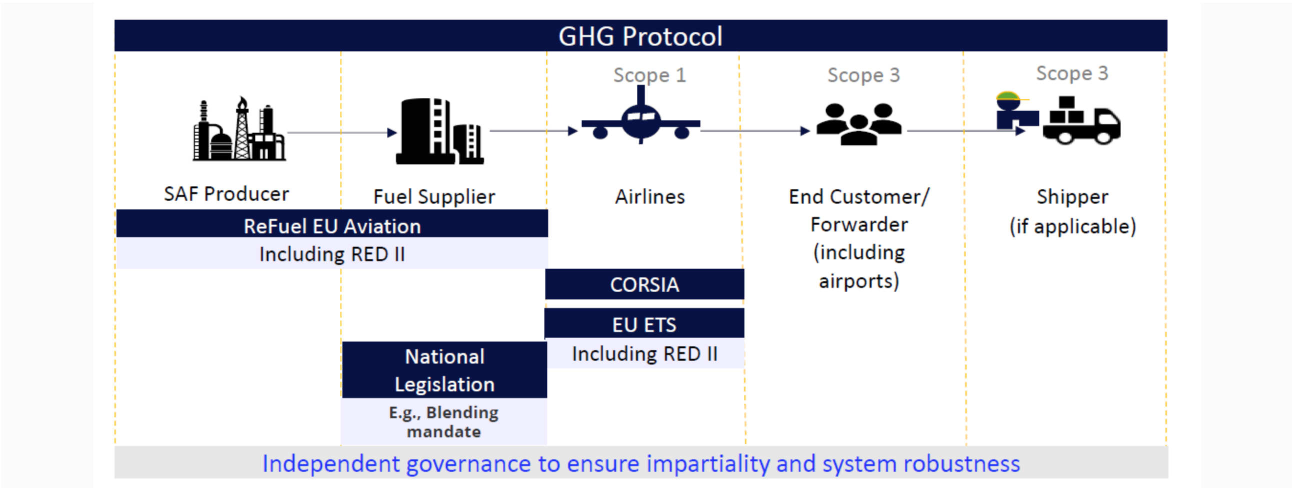

Figure 5 GHG frameworks for SAF (IATA, 2024)

The presentation outlined stakeholder-specific requirements, described the structure of the certification framework, and emphasized the importance of selecting appropriate certification schemes. It concluded with a review of SAF documentation types and the supplementary data needed to support robust sustainability claims, along with a roadmap for future actions and additional resources.

The second presentation, led by the RSB team, focused on the operational mechanisms that underpin SAF certification, particularly the systems for traceability and chain of custody (Figure 6) . RSB introduced its comprehensive management system, which defines staff responsibilities, ensures compliance with certification requirements, and includes annual internal audits. The traceability and chain of custody system was described in detail, highlighting how it tracks certified materials, applies a mass balance approach, and ensures accurate attribution of sustainability information throughout the supply chain. RSB also explained its methodology for calculating greenhouse gas emissions, which supports the generation of credible Proof of Sustainability (PoS) documents.

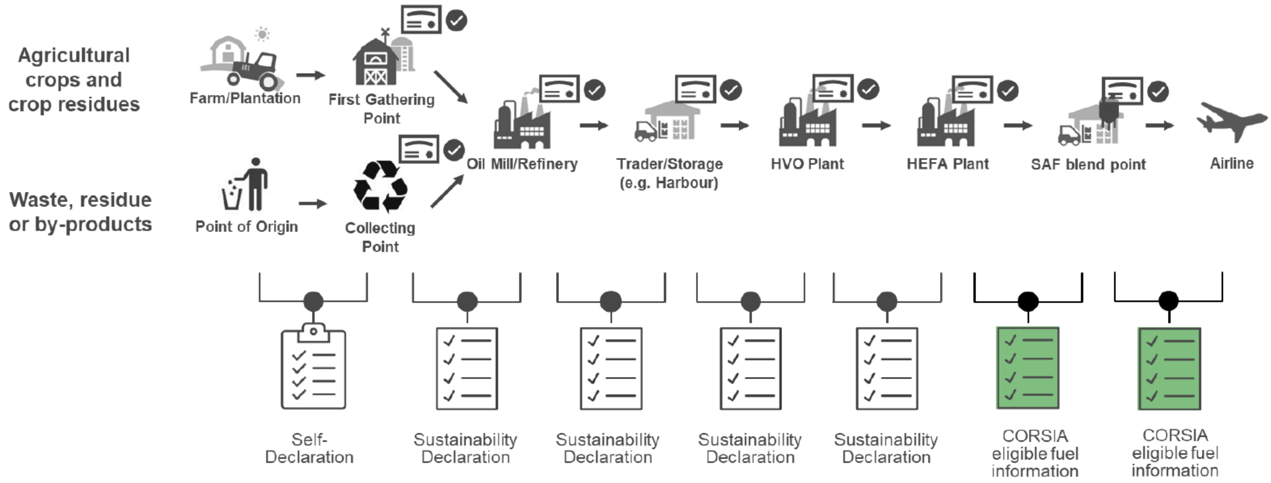

Figure 6. Flow of sustainability information in the chain of custody associated to SAF (RSB, 2024)

To illustrate the practical application of these systems, RSB presented a four-step audit process used to verify compliance with its chain of custody standards. This includes evaluating operational units, assessing the implementation of accounting systems, reviewing transaction records, and verifying the use of trademarks and claims. A step-by-step depiction of the SAF supply chain was also shared, tracing the flow of sustainability information from feedstock origin—such as agricultural residues or waste—through refining and blending stages, to final delivery to airlines. Each stage was linked to specific documentation requirements, reinforcing the importance of transparency and traceability in SAF certification.

Additionally, the session clarified the roles and responsibilities for monitoring, reporting, and verifying SAF under the CORSIA framework. According to CORSIA guidelines for Eligible Fuels (CEF), Sustainability Certification Schemes (SCS) are responsible for certification up to the blending point. Beyond this, life cycle emissions values—whether estimated or default—are carried through to the point of combustion. Once the CEF is blended and ready for use, the responsibility for tracking and reporting shifts to the Aeroplane Operator, who must follow the CORSIA Monitoring, Reporting and Verification process. The State to which the operator is attributed oversees the submitted data to ensure compliance with CORSIA provisions.

To conclude, RSB shared a template for the Proof of Sustainability (PoS) document, which operators can use to record and communicate key sustainability information. This template outlines the required data fields and supports consistent, auditable reporting across the SAF supply chain.

3.4 Bold Vision Workshop on SAF

The Bold Vision Workshop, held in person in Copenhagen as part of the ALIGHT project during 29thand 30th October 2024. It brought together a wide range of stakeholders to explore the future of sustainable airports (Figure 7). On the second day of the event, a dedicated session was guided by the Sustainable Airports Platform (SAP), focusing on two critical themes: the long-term role of Sustainable Aviation Fuels (SAF) and the impact of aviation's non-CO_2 emissions.

This session leveraged the network established through SAP under Task 7.5 to foster strategic dialogue on how airports can actively contribute to climate mitigation beyond CO_2 reduction. SAF was reaffirmed as a key enabler in aviation's transition to net-zero emissions, with SkyNRG presenting a long-term outlook on SAF market development. The presentation highlighted the need for diversified production pathways, flexible feedstock use, and strong policy support to scale up SAF availability. The importance of e-SAF (electrofuels) was also emphasized, particularly for hard-to-decarbonize sectors like aviation and maritime transport. Achieving large-scale deployment will require internationally aligned sustainability criteria, regulatory clarity, and financial frameworks to unlock investment.

Figure 7 Participants in the Bold Vision Workshop (CPH, 2024)

Scientific insights from DLR added depth to the discussion, focusing on the climate impact of contrail formation and the potential of SAF to mitigate these effects. Preliminary results from a simulation study at Copenhagen Airport, conducted under ALIGHT's Task 3.6, demonstrated how targeted SAF use could reduce contrail formation. These findings sparked discussion on the implications for airport fueling infrastructure and operational strategies.

The session also addressed emerging policy developments, including the EU's upcoming Monitoring, Reporting, and Verification (MRV) scheme for non-CO_2 emissions. Participants were encouraged to stay informed on the latest scientific and regulatory updates, as these will shape future sustainability strategies.

The workshop concluded with a call for enhanced collaboration across stakeholder groups. Airports were positioned not only as infrastructure providers but as strategic actors capable of driving innovation and climate action. The SAP-led session underscored that addressing SAF deployment and non-CO_2 emissions in tandem is essential for building a resilient and sustainable future for aviation.

The workshop outcomes have contributed to formulating the Bold Vision as part of D 7.3.

4 Non-CO_2 emission benefits

While CO_2 remains the most recognised contributor to aviation's climate impact, a significant share of the sector's warming effect arises from non-CO_2 emissions such as nitrogen oxides (NO_x), water vapour, and contrail-induced cirrus clouds. These effects are complex, highly variable, and often overlooked in policy frameworks.

Sustainable Aviation Fuels (SAF) offer potential co-benefits beyond CO_2 reduction, particularly in mitigating non-CO_2 impacts. Their chemical composition—especially aromatic and hydrogen content—affects soot formation, contrail characteristics, and particulate matter emissions. Recent ground and in-flight studies show that SAF can lower contrail ice particle numbers and reduce radiative forcing, although benefits vary with blend ratios, baseline fuel quality, flight conditions, and local climatology[4] [5].

This section explores the latest findings from scientific campaigns and stakeholder initiatives on SAF's influence over non-CO_2 climate effects. It covers technical insights and the social and policy dimensions of integrating non-CO_2 impacts into climate strategies. Together, these perspectives underline why addressing non-CO_2 emissions is essential for a credible and comprehensive decarbonisation pathway in aviation.

4.1 Introducing non-CO_2 emissions and climate change impacts from contrails

In March 2023, during the Port meeting in Copenhagen, the Sustainable Airports Platform held an in-person session featuring a dedicated presentation on non-CO_2 emissions in aviation. The discussion opened with an overview of these climate impacts and their importance. While CO_2 is the most widely recognised driver of global warming, other factors — such as NO_x emissions, water vapour, and contrail-induced cirrus — can contribute up to two-thirds of aviation's total climate impact. Focusing solely on CO_2 reduction while neglecting these effects could result in up to 0.4 °C of additional warming, jeopardising the 1.5 °C target of the Paris Agreement. Both CO_2 and non-CO_2 impacts act over long timescales (Figure 8), yet shorter-lived phenomena like contrails and cirrus clouds can exert substantial near-term warming effects.

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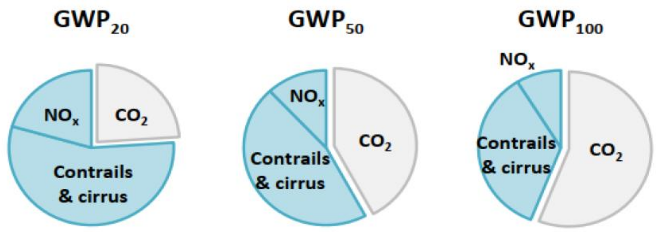
[4] https://alight-aviation.eu/onewebmedia/ALIGHT-WP3-D3-3-RPT-PU-V1-FINAL%20%281%29.pdf
[5] https://alight-aviation.eu/onewebmedia/Press%20Release%20-%20Biofuel%20Improves%20Air%20Quality.pdf



Effect	GWP_{20}	GWP_{50}	GWP_{100}
CO_2 (Gt CO_2)	1034	1034	1034
Contrails and cirrus (Gt CO_2-eq)	*2399*	*1129*	*652*
Net effect of NO_x (Gt CO_2-eq)	*887*	*293*	*163*
Others (Gt CO_2-eq)	*-188*	*-88*	*-51*
Total Gt CO_2-eq	**4128**	**2366**	**1797**
CO_2-eq to CO_2 ratio	**4.0**	**2.3**	**1.7**

Lee et al., Atm Env, 2021
B. Rauch, DLR Institute of Combustion Technology, 20.04.2023

Figure 8 Comparative impacts of CO_2 and non-CO_2 emissions of aviation in climate change (DLR, 2023)

Evidence from more than a decade of ground and flight campaigns shows that the chemical composition of fuel plays a decisive role in these impacts. Fuels with low aromatic content and high hydrogen content consistently produce fewer soot particles and reduce ice particle formation in contrails by around 50%. These reductions are not solely determined by the SAF blend ratio; the baseline reference fuel matters greatly. Detailed fuel analysis, including advanced chromatography at stages from delivery to sampling, has helped link specific fuel properties to observed emission outcomes.

Contrails themselves do not directly cause climate change, but avoiding or reducing them can lower radiative forcing, and even modest reductions in ice particle numbers can deliver substantial benefits due to the non-linear relationship involved. Not all flights contribute equally — a small percentage can be responsible for the majority of the impact, depending on atmospheric conditions and flight routing.

Key takeaways from the discussion included:

- Non-CO_2 effects can make up to two-thirds of aviation's total climate impact.
- Low-aromatic, high-hydrogen fuels reduce contrail formation.
- Significant soot reduction is essential to mitigate contrail-related climate effects.
- Strategic fuel supply at airports can maximise climate benefits.

In response to questions, it was noted that most studies use 50% SAF blends, but measurable results are possible with as little as 20%, depending on location and supply logistics. Regarding hydrogen-derived jet fuels, future adoption could lead to more contrails, but with lower radiative impact — a hypothesis requiring further research. The session concluded with reflections on the difficulty of integrating non-CO_2 impacts into certification and regulatory schemes due to variability in weather, geography, and operational factors, underscoring the need for robust measurement and monitoring frameworks.

4.2 Social benefits of non-CO_2 emissions derived from SAF

In April 2024, the Sustainable Airports Platform (SAP) hosted an interactive session to present the report: "Case study on the non- CO_2 impacts of SAF" made by To70 in collaboration with RSB. [6] The session focused on the social dimensions of aviation's non-CO_2 emissions and the role of Sustainable Aviation Fuels (SAF) in mitigating these impacts. Using Mentimeter as a live engagement tool, participants explored public understanding and perceptions of non-CO_2 effects—such as contrail formation, nitrogen oxides (NO_x), and particulate matter—and their relevance to climate change.

The session revealed that while awareness of non-CO_2 emissions is growing, knowledge gaps remain. Most participants correctly identified 2020 as the year when the aviation industry began formally addressing these impacts, and responses showed a broad understanding of what constitutes non-CO_2 emissions. However, opinions varied on how these compare to CO_2 in terms of warming potential—highlighting the lack of consensus across scientific, societal, and industry perspectives.

The presentation emphasized SAF's potential to reduce non-CO_2 impacts, particularly through lower particulate emissions at the local level. Contrail map[7], a real-time global contrail map was used to illustrate the widespread nature of these effects, helping participants visualize their global significance.

A case study from airports on the U.S. West Coast showcased early efforts to introduce SAF as a strategy to mitigate non-CO_2 emissions. Drawing from this and other initiatives (Figure 9) — including the SAF measurement campaign held at Copenhagen Airport (Task 3.6) where measurements of air quality taken at Copenhagen Airport showed a significant reduction in ultrafine particle emissions when aircraft operate on bio-based fuels, the ECLIF flight campaigns[8], and the development of a non-CO_2 monitoring and reporting framework—several key insights emerged:

1. **Scaling high-blend SAF** requires regional production support, cross-border policy alignment, and incentives for high-quality fuels.
2. **Fuel composition matters**—ongoing testing and dedicated research are needed to refine SAF's climate performance.

[6] https://rsb.org/wp-content/uploads/2024/05/24-5-24-final-report-rsb-non-co2.pdf
[7] https://map.contrails.org/
[8] https://www.dlr.de/en/blog/archive/2024/towards-climate-compatible-aviation-dlr-is-investigating-the-use-of-alternative-fuels

3. **Segregated supply chains** may be necessary to optimize SAF delivery and traceability.
4. **Non-CO_2 metrics** should be integrated into environmental approvals and climate reporting frameworks.
5. **Awareness and collaboration** are essential—local and global partnerships, such as those with SABA and RSB's Book & Claim system, can help drive progress.

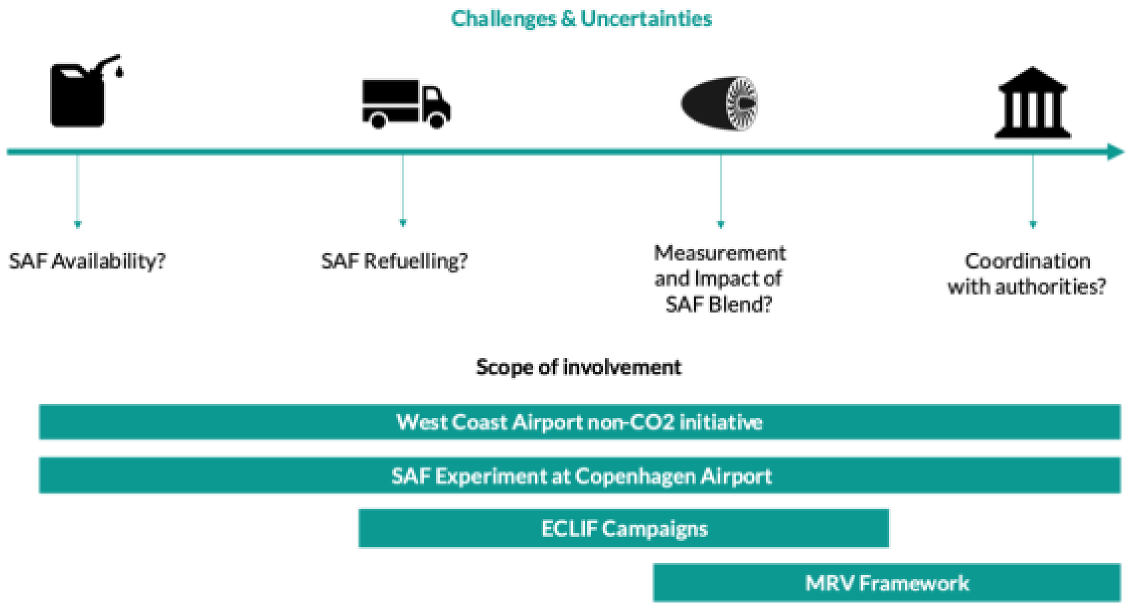


Figure 9 Relation of the initiative to SAF non-CO2 emissions challenges and uncertainties (To70 &RSB, 2024[9])

The session concluded with a collaborative Miro board exercise, inviting participants to share concerns, opportunities, and ideas for future research. A key takeaway was the need to bridge the gap between SAF production methods and their non-CO_2 emission profiles—an area where further scientific investigation is urgently needed.

This session underscored that addressing non-CO_2 emissions is not only a technical challenge but also a social one. Building awareness, fostering collaboration, and equipping stakeholders with the right tools and knowledge are critical steps toward a more holistic and effective climate strategy for aviation.

5 Tools to support airport decarbonisation

A comprehensive range of strategies for achieving airport decarbonisation has been presented in recent decades, with particular emphasis on the role of dedicated digital toolkits. In this regard, the SAP has addressed a number of disparate themes, consolidating them into three distinct categories: the monitoring and modelling of greenhouse gas (GHG) emissions through the

[9] https://rsb.org/wp-content/uploads/2024/05/24-5-24-final-report-rsb-non-co2.pdf

utilisation of web-based calculation tools (Section 5.1); guidance reports that facilitate the implementation of specific triggers, such as the SAF use (Section 5.2); and the B&C system, which advocates for airport sustainability (Section 5.3).

5.1 Tools for airport sustainability

In October 2023, the SAP consortium was introduced to Cascade[10], a dynamic modelling tool developed by Boeing and made freely available to support decarbonisation strategies in aviation. Cascade allows users to explore how different decarbonisation pathways could affect today's fleet and to build projection scenarios with a time horizon extending to 2050. The model reflects Boeing's four strategic pillars for reducing emissions: (i) promoting fleet renewal, (ii) implementing advanced technology (e.g., new aerodynamics from novel equipment), (iii) pursuing operational efficiency (e.g., better navigation systems), and (iv) using renewable energy.

The tool operates by allowing users to select and combine different strategies, testing them under optimistic or skeptical assumptions based either on subjective inputs or on published literature. This flexibility makes Cascade adaptable to case-specific analyses Figure 10) , going beyond Boeing's perspective and enabling stakeholders to adjust assumptions to their own context. During the presentation, five main insights were highlighted.

Figure 10 Screenshot of Cascade tool (Boeing, 2024)

First, Cascade promotes life-cycle thinking, helping users explore strategies in greater detail. Second, fleet renewal not only delivers immediate emission reductions but also secures future benefits. Third, SAF emerged as one of the most impactful levers for achieving net-zero aviation. Fourth, electricity and hydrogen were shown to play important yet ambiguous roles, highly dependent on their production pathways (e.g. grey vs. green hydrogen, or Brazilian vs. German

[10] https://cascade.boeing.com/

electricity mix). Finally, the tool reinforced the need for a collaborative, data-driven network that makes decarbonisation strategies transparent, user-friendly, and grounded in publicly available information.

Alongside Cascade, participants were introduced to the official ICAO website dedicated to SAF, which centralises knowledge and tools on sustainable aviation fuels. The site includes interactive maps tracking SAF refineries and airports with SAF experience, as well as a full overview of approved feedstocks under CORSIA, those still under evaluation, conversion processes, and policy frameworks. It also offers practical resources such as the ICAO Carbon Emission Calculator [11] ,the Green Meeting Calculator [12], which determines the most feasible location for a specific event to make commutes more sustainable; and the Eco-Airport Toolkit E-Collection [13], a set of tools focusing on environmental management in airports.

The session concluded with open discussion. During this session, the risk mitigation mechanisms for avoiding double claims and double counting were mentioned. In this regard, the CORSIA website was identified as an appropriate resource. Others asked about ICAO's broader role in aviation sustainability beyond scope 1 GHG emissions, and it was noted that this issue will be addressed at an upcoming ICAO conference. Finally, questions were raised about whether Cascade could be used to model emissions at the airport level. While it was clarified that Cascade is primarily designed for airline-level analysis on a yearly basis, its underlying methodology and assumptions could indeed inform airport-related decarbonisation planning..

5.2 Best practises handbook for airports

In April 2025, IATA organized a webinar to present the outcomes of Work Package 3 (WP3) on the implementation and use of Sustainable Aviation Fuels (SAF). The session highlighted the main activities conducted within WP3 and introduced a key deliverable: a comprehensive handbook and set of tools compiling best practices for airports in fuel logistics, quality monitoring, and accounting. The overarching goal of these resources is to facilitate more efficient and cost-effective use of SAF at airports, optimizing the supply chain while mitigating its climate impact.

A central element of the webinar was the presentation of four “smart use” scenarios for SAF:

- Scenario 1. Mass balance (Business as usual). This serves as a reference, in which CAF (Conventional Aviaiton Fuel) and SAF is used independently for any kind of aircraft, thus receiving the same amount. However, it is important to consider that not all of them pollute the air in the same way.

[11] https://www.icao.int/environmental-protection/CarbonOffset
[12] https://igmc.icao.int/userGuide
[13] https://www.icao.int/eco-airport-toolkit-e-collection

- Scenario 2: Dedicated flights. Depending on several factors, such as the time of day or the altitude they fly at, some aircraft can produce more pollution to the air, especially for the non-CO2 emissions in relation to the contrails produced during combustion, so it is important to prioritise the use of SAF on them. In this regard, segregated distribution is proposed in primary and secondary storage systems.
- Scenario 3. Dedicated airports. This scenario is similar to scenario 1 but concentrates the supply of SAF on those airports that can produce the highest local air improvement impacts. Two parameters were considered in this regard: (i) highly populated regions and (ii) local air quality parameters.
- Scenario 4. Supply of non-drop in 100% SAF or Jet-X. Considered as potentially the best scenario in terms of environmental benefits. Specific supply chain exclusively for Jet-X, while there is another supply chain dedicated to CAF & SAF. However, to demonstrate this, cost-benefit analysis are expected to be undertaken in WP3 and reported in D6.5.

The webinar also showcased the roadmap for SAF implementation at Fiumicino Airport, which became the first airport in Italy to provide SAF in 2021. The SAF blend used reduced CO_2 emissions by 60–90%. In 2022, an experimental study demonstrated the feasibility of transporting SAF from Civitavecchia Port via existing pipelines to three companies, highlighting the logistical processes required to make SAF deployment operationally viable.

Finally, it was explained how a self-assessment checklist work, designed to guide airports in incorporating SAF into their operations. Based on the responses provided, the checklist determines the airport's position relative to the four smart-use SAF scenarios, while ensuring compliance with relevant regulations and supporting the maximization of SAF's non-CO_2 benefits both in flight and on the ground.

During the Q&A session, participants clarified the distinction between SAF and SAF blends, emphasizing that SAF blends should be used in all operational circumstances. It was also confirmed that technical and environmental specifications are carefully considered in the wording used throughout the handbook. Lastly, it was asked about the timeline accessibility of the handbook, which is expected to be available in the following two months.

5.3 Book & Claim system

As airports strive to meet increasingly ambitious climate targets, innovative mechanisms for tracking and reporting emissions reductions are becoming essential. This section introduces the Book & Claim (B&C) system developed by RSB as a strategic tool to support airport sustainability, particularly in the context of Sustainable Aviation Fuel (SAF) deployment.

In May 2025, the Sustainable Airport Platform (SAP) hosted a session dedicated to exploring two interrelated themes: the sources of airport-related greenhouse gas (GHG) emissions and the strategies being implemented to reduce them, with a particular focus on the RSB Book & Claim (B&C) system as a promising tool to support airport sustainability.

The first part focused on greenhouse gas (GHG) emissions in aviation, illustrated with the case of Copenhagen Airport. Ambitious targets were presented: achieving net zero carbon across airport operations by 2030 (90% reduction of combined scope 1 and 2 emissions relative to 2019) and across the entire value chain by 2050 (90% reduction of combined scope 1, 2, and 3 relative to 2024). The session highlighted the significant gap between emissions accounted for by the airport's inventory (mainly scope 1 and 2, totaling 496 ktCO_2 eq.) and total emissions from complete flight operations, including scope 3 (2.58 MtCO_2 eq.) (Figure 11).

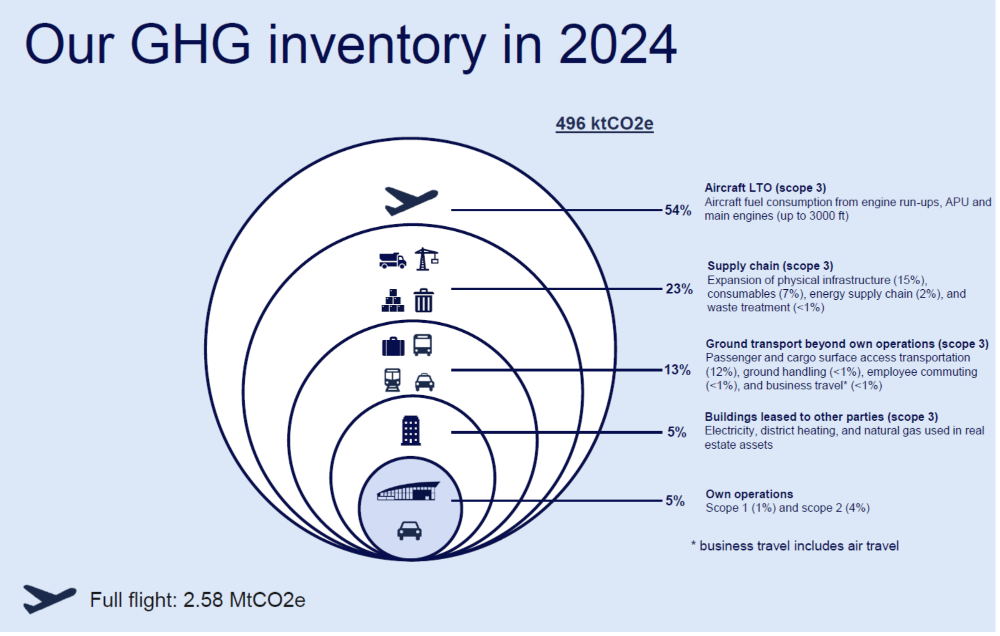


Figure 11. GHG inventory of the Copenhagen airport in 2024 (CPH, 2024)

Decarbonization measures at Copenhagen Airport are already underway for scope 1 and 2, including on-site renewable energy generation through solar panels, electric heat pump deployment in buildings, transition to battery-electric vehicles, and use of biodiesel. For scope 3 emissions, strategies under consideration include alternative fuels, fleet renewal, airspace optimization, and low-emission taxing for aircraft landing and take-off operations. SAF is expected to play a key role, particularly for scope 3.6 (business travel) and scope 3.11 (use of sold products), though current reporting standards like the GHG Protocol provides limited guidance on incorporating these benefits. Challenges remain in distinguishing between SAF accounting, carbon credits, and ensuring a full audit trail, especially under targets such as ReFuel EU Aviation's 2% SAF goal for 2025.

The second part of the session provided an overview of RSB´s B&C system. The system tracks SAF through two merged supply chains—SAF and conventional jet fuel—allowing emissions reductions to be registered and claimed even when SAF is not physically delivered to a specific flight. Two main use cases were discussed:

- Use Case 1: Certified SAF is supplied to an air carrier via an intermediary or a nearby airport without sustainability claims. Registration and tracking ensure the carrier receives a retirement statement, enabling a scope 1 emissions claim.
- Use Case 2: Extends Use Case 1 to include a corporate end-user in the registration process, allowing a scope 3 emissions claim as well.

The session also demonstrated the B&C Registry web page, explaining how to interpret the data and calculate CO_2 reductions associated with SAF. Transparency and accurate reporting were emphasized as critical for company-level sustainability claims (Figure 12).

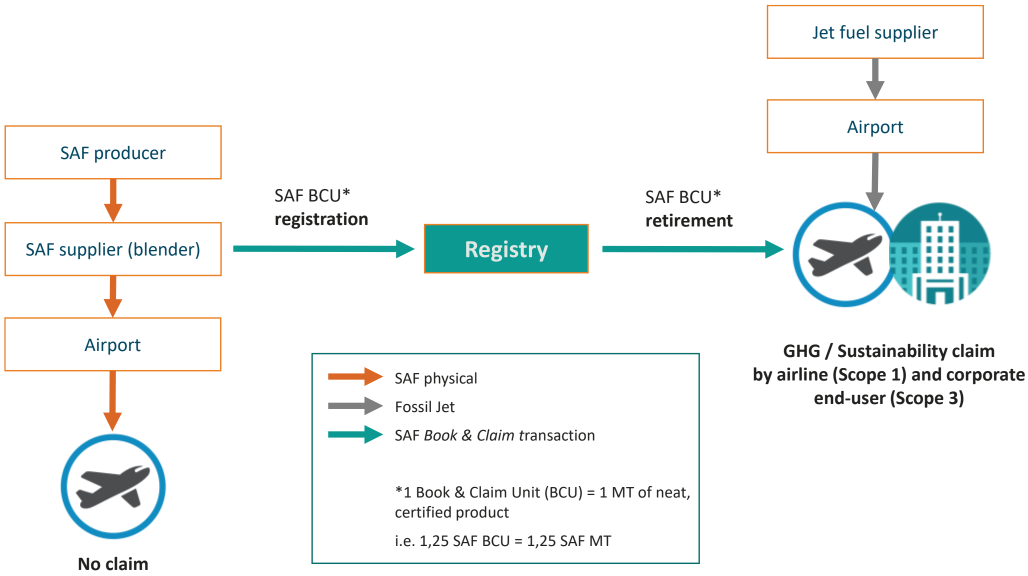


Figure 12 Simplified process of the Book & Claim system (RSB, 2024)

During the questions and answers session, several important issues were raised. One point of concern was the absence of clear guidance in the GHG Protocol regarding scope 3 emissions, as well as the delays in updating the framework to address this gap. Participants also discussed the significant role of emissions from landing and take-off (LTO) operations. It was noted that these could be mitigated through the increased use of SAF and, for short domestic routes, the introduction of electric aviation. The discussion further highlighted the need to consider non-CO_2 effects—not only those linked to SAF, but also to alternative low-aromatic fossil fuels, which can reduce contrail formation during combustion.

6 Conclusions

The Sustainable Airport Platform (SAP), established under the ALIGHT project, has proven to be a pivotal initiative in fostering collaboration, knowledge exchange, and strategic alignment among airports and aviation stakeholders across Europe and beyond. Over the course of its implementation from 2022 to 2025, SAP has successfully convened a diverse network of participants, including representatives from leading airports, EU sister projects, research institutions, and regulatory bodies, thereby enriching the dialogue around sustainable aviation.

Key outcomes of SAP include:

- **Enhanced SAF Awareness and Integration**: Through targeted workshops, webinars, and deliverables such as D6.1, SAP has contributed to a deeper understanding of Sustainable Aviation Fuel (SAF) implementation, certification, and communication strategies. The SAF guidance for airports has become a cornerstone for future sustainability planning.
- **Strategic Insights on Non-CO_2 Emissions**: SAP has elevated the discourse on non-CO_2 climate impacts, highlighting the role of SAF in mitigating contrail formation and particulate emissions. The sessions held in Copenhagen and the Bold Vision Workshop have underscored the need for robust monitoring frameworks and policy integration.
- **Development of Decarbonisation Tools and Best Practices**: The platform introduced innovative tools such as Boeing's Cascade model and ICAO's SAF resources, alongside practical handbooks and self-assessment checklists. These resources empower airports to model emissions, plan SAF deployment, and align with international climate targets.
- **Promotion of Incentive Schemes and Book & Claim Systems**: SAP facilitated the exchange of best practices from sister projects like TULIPS and STARGATE, and showcased the RSB Book & Claim system as a scalable solution for SAF accounting and emissions reduction claims.
- **Visionary Planning for 2050**: The Bold Vision Workshop provided a strategic outlook on the future of airports as energy and mobility hubs, integrating SAF, electrification, and digitalisation. The collaborative format enabled stakeholders to co-create actionable pathways toward net-zero aviation.

In conclusion, SAP has not only supported the ALIGHT project's objectives but has also laid the groundwork for long-term transformation in the aviation sector. Its inclusive approach, evidence-based discussions, and practical outputs have positioned it as a model for future cooperation platforms. Continued engagement and expansion of SAP beyond the project's lifecycle will be essential to maintain momentum and drive systemic change in airport Sustainability.