Pegasus Guidelines for the Aviation Sector

Report / March 2024

Authors and Acknowledgments

Authors

Nicholas Halterman
Lucy Kessler
Meghan Morgan

Authors listed alphabetically. All authors from RMI unless otherwise noted.

Contacts

Estefania Marchan, emarchan@rmi.org
Thomas White, tomwhite@rmi.org
Nicholas Halterman, nhalterman@rmi.org

Copyrights and Citation

Acknowledgments

Special thanks to Estefania Marchan (RMI), Thomas White (RMI), and Jolene Verheije (RMI) for their contributions and guidance.

We would like to thank Watson Farley & Williams for their pro bono legal advice provided in support of this project.

Thank you to the Science Based Targets initiative (SBTi), International Council on Clean Transportation (ICCT), ICF, Maximillian Held (Energy Transition Commission), and other collaborators for providing valuable contributions to this project.

The report was edited and designed by M. Harris & Company.

About RMI

RMI is an independent nonprofit, founded in 1982 as Rocky Mountain Institute, that transforms global energy systems through market-driven solutions to align with a 1.5°C future and secure a clean, prosperous, zero-carbon future for all. We work in the world's most critical geographies and engage businesses, policymakers, communities, and nongovernmental organizations to identify and scale energy system interventions that will cut greenhouse gas emissions at least 50 percent by 2030. RMI has offices in Basalt and Boulder, Colorado; New York City; Oakland, California; Washington, D.C.; and Beijing.

Table of Contents

I. Letter from RMI

We are proud to announce the launch of the Pegasus Guidelines, a voluntary standard for financial institutions to independently measure and disclose the emissions intensity and/or climate alignment of their aviation lending portfolios. This sector-specific standard was designed by the Center for Climate-Aligned Finance at RMI and shaped by a core Working Group of global financial institutions, comprising BNP Paribas, Citi, Credit Agricole CIB, Societe Generale, and Standard Chartered. Approximately 70 organizations spanning industry, finance, and civil society reviewed the proposed methodology and provided input throughout the process (Appendix A).

The aviation sector accounts for 2.5% of global CO_2 emissions and this fraction is projected to increase significantly in the coming decades — under a business-as-usual scenario, air traffic may consume up to 10% of the planet's remaining 1.5°C carbon budget through 2050.[i] In addition to rising demand, the sector faces unique decarbonization challenges. Many of the identified climate solutions, such as sustainable aviation fuels (SAFs), hydrogen and battery-powered electric propulsion, and next-generation aircraft design, will require further technological development or are not yet available at sufficient commercial scale. Financial institutions can play an important role in supporting decarbonization solutions for the sector through financing the technologies, projects, and companies that can contribute to a zero-carbon future.

"The aviation sector accounts for 2.5% of global CO_2 emissions and this fraction is projected to increase significantly in the coming decades — under a business-as-usual scenario, air traffic may consume up to 10% of the planet's remaining 1.5°C carbon budget through 2050."

Financial institutions that adopt this measurement and disclosure methodology are equipped to calculate the climate alignment of their aviation lending portfolios and disclose their alignment and/or emissions intensity annually compared with a 1.5°C roadmap. The Pegasus Guidelines promotes standardization and results in comparability in greenhouse gas (GHG) emissions accounting. Participating financial institutions are able to access high-quality data and important insights into the emissions and activities associated with each financing on their balance sheet. There are no sign-on requirements and implementation of the framework is voluntary.

On an individual and independent basis, financial institutions using the framework may also use the resulting information to help inform institutional goals and climate strategies. By increasing transparency into the source of emissions within their portfolios, financial institutions will be better positioned to support their clients' decarbonization goals and efforts and can encourage the availability of transition finance. In addition, participating institutions will be well equipped to compile information in line with

---

i Mission Possible Partnership, *Making Net-Zero Aviation Possible: An Industry-Backed, 1.5°C-Aligned Transition Strategy*, 2022, **https://missionpossiblepartnership.org/wp-content/uploads/2023/01/Making-Net-Zero-Aviation-possible.pdf**.

existing initiatives, such as the Net-Zero Banking Alliance (NZBA), and to set and disclose against sectoral targets independently and voluntarily.

The Pegasus Guidelines will be updated as needed by RMI in consultation with financial institutions, industry, and other stakeholders. In its current iteration, the Pegasus Guidelines provides comprehensive guidance for evaluating the climate alignment of financing to airlines and lessors.

Additionally, the selected 1.5°C roadmap will be regularly reviewed. Although emissions reductions due to carbon capture and sequestration technologies are not currently included in these guidelines, we recognize these technologies will likely play a growing role in the sector's decarbonization and will consider their inclusion in future refinements of the methodology as industry and accounting standards develop.

Furthermore, although we recognize that the utilization of forward-looking metrics provides critical information to inform portfolio climate alignment, this existing methodology is tailored to measure the current positioning of a portfolio based on historical data. Therefore, in the future, RMI may suggest the inclusion of a forward-looking metric, where appropriate.

We look forward to financial institutions adopting these guidelines to help them attain the consistency, accuracy, and comparability necessary for them to independently support the decarbonization efforts of their aviation-sector clients in the coming decades, and we invite you to participate in this groundbreaking initiative.

Please note: The Pegasus Guidelines and its users are committed to compliance with all laws and regulations. This includes, among others, antitrust and other laws and regulations applicable to collaborative engagements. Each user is responsible for independently making use of these guidelines in its own judgment and in line with its own business goals (subject to, and consistent with, all fiduciary and contractual duties, laws, and regulations) and internal compliance policies. The Working Group and RMI developed these guidelines mindful of these obligations.

II. Introduction

Any financial institution that lends to commercial aviation lessors and/or airlines may use the Pegasus Guidelines to independently measure and disclose the climate alignment of its lending to the aviation sector. A participating financial institution, or user, of the Pegasus Guidelines should follow these guidelines to measure and disclose the climate alignment and/or emissions intensity of its aviation lending portfolio. The following sections outline the guidance for users to (a) identify the universe of financings to include in their calculations, (b) source high-quality data in a consistent manner, (c) calculate the emissions intensity associated with each financing, (d) calculate the resulting climate alignment of their aviation portfolios, and (e) report their portfolio-level climate alignment and/or emissions intensity annually.

The guidelines of the standard include:

1. **Standardized measurement:** Annually measure climate alignment according to the Pegasus Guidelines methodology for all financings covered by this methodology. Depending on a user's intended disclosures, this includes measuring the emissions intensity associated with each financing and calculating the resulting climate alignment of its aviation lending portfolio, quantified by the Portfolio Alignment Score (PAS).

2. **Consistent approach to data access:** Users are encouraged to calculate climate alignment with data sourced directly from clients. Alternatively, when primary data is not available directly from a client, users are encouraged to source data from a qualified third-party data provider. The list of qualified data providers is available through the RMI website.[ii] If a user does not use a data provider from this list, the user should disclose that fact, though the user is not required to disclose which data provider it did use.

   A user is encouraged to request the provision of client data in financial contracts. An example covenant clause for new financings, as defined in Appendix B, is available on the RMI website.[iii] The use of a covenant clause is entirely voluntary, and users are free to use alternative language that conveys the same meaning if they elect to do so.

3. **Annual reporting:** Annually disclose the following in individual institutional reporting:
   a. The user's PAS and/or emissions intensity
   b. Parameters used to calculate the user's PAS and/or emissions intensity
   c. If the user used a data provider that does not appear on the qualified data provider list
   d. Publicly acknowledge using the Pegasus Guidelines

   Additionally, users are encouraged to report a brief narrative to accompany the PAS and/or emissions intensity in their individual institutional reports.

---

ii https://climatealignment.org/focus-areas/

iii https://climatealignment.org/focus-areas/

III. Guideline 1: Standardized Measurement of Emissions

This section forms the guidance for a user to measure the emissions intensity of its overall aviation lending portfolio, compare it with a sector-specific 1.5°C-aligned roadmap, and calculate its climate alignment in the form of a PAS.

Guideline	**Measure the climate alignment of all financings covered by and according to the Pegasus Guidelines guidance and methodology on an annual basis. Depending on a user's intended disclosures, this includes measuring the GHG emissions intensity associated with each financing and calculating the resulting climate alignment of an aviation portfolio, quantified by the PAS.**

The nine-step methodology outlined below provides a user with the instructions needed to calculate the climate alignment of its portfolio. This guidance addresses the full range of aviation finance portfolios, including financing for both airlines and lessors, and both aircraft-specific and general-purpose financing. Financing to lessors is evaluated on a "look-through" basis to ensure the involvement of a lessor in a transaction does not bias measurement, and aircraft-specific financing is accounted for by taking the operator aircraft model average values to reflect the composition of a portfolio as accurately as possible.[iv]

The methodology calls for the calculation of a user's portfolio-level emissions intensity for commercial aviation, excluding military aviation, corporate and business jets, helicopters, and general civilian aviation, in line with existing Science Based Targets initiative (SBTi) guidance. Emissions intensity is measured in carbon dioxide equivalent[v] on a well-to-wake (WTW) basis and is normalized by a traffic metric in the form of revenue ton kilometers (RTKs). Emissions are considered on a WTW basis to account for the life-cycle emissions of SAF. The incorporation of RTKs ensures all major payload types are encompassed, including emissions resulting from belly freight and dedicated cargo traffic.

Once a user calculates portfolio-level emissions intensity, this figure is compared with the user's specific emissions intensity benchmark, determined by the Mission Possible Partnership Prudent (MPP PRU) scenario, a 1.5°C-aligned roadmap. These customized benchmarks are determined by the user's relative exposure to passenger and dedicated cargo aircraft, which can avoid distortions that may result from the different emissions intensities across these industry segments. The resulting PAS value provides a comprehensive and robust summary of the overall alignment of a financier's aviation portfolio compared with the 1.5°C-aligned roadmap.

---

iv A "look-through" approach evaluates aircraft based on the operating airline, regardless of whether the aircraft is leased or directly owned by the operating airline. Under this methodology, an aircraft-secured facility to Lessor A in which the aircraft are leased to Airline A is equivalent to an aircraft-secured facility for the same aircraft provided directly to Airline A.

v Emissions are calculated in CO_2e units, which include non-CO_2 Kyoto Protocol GHGs, but which do not include non-GHG warming effects such as radiative forcing. See Step 3.

Please note that in the below nine steps, Steps 3–6 are included only to show the full breadth of calculations but will be completed by an independently contracted qualified data provider[vi] or by clients via the client reporting template,[vii] depending on the source of the user's data. The user will not execute Steps 3–6 itself.

Measuring Climate Alignment: Portfolio Emissions Intensity, Benchmark, and the Portfolio Alignment Score

Metric: Portfolio Emissions Intensity

To quantify the climate alignment of an aviation lending portfolio, the Pegasus Guidelines methodology uses an emissions intensity metric. Emissions intensity is first measured at the asset and/or counterparty level, then aggregated into a single portfolio-level average. An emissions intensity metric is used in place of an absolute emissions metric to promote comparability between portfolios of different sizes, mitigate double counting, and harmonize with existing standards such as SBTi.[viii]

The Pegasus Guidelines emissions intensity metric is grams of CO_2e per RTK. This metric is consistent with SBTi's guidance for the aviation sector, which currently uses this metric for airline target setting and disclosure.

To calculate emissions intensity, a user determines the total annual emissions of the relevant group of aircraft (depending on how the financing is structured) and divides that figure by the total annual traffic generated by such aircraft. This process is repeated for each financing, and the resulting intensities are aggregated based on exposure, resulting in a portfolio-level value.

$$\text{Emissions Intensity} = \frac{\text{Annual Emissions in Grams } CO_2\text{ e}}{\text{Annual Traffic in RTKs}}$$

Numerator – The Emissions Scope: Annual GHG emissions are measured on a WTW basis. These emissions include upstream fuel-refining emissions and direct fuel-burn emissions (i.e., inclusive of all emissions associated with the production and combustion of jet fuel). Airport building emissions, aircraft manufacturing emissions, and ground handling emissions are not included. WTW emissions are consistent with current SBTi guidance, allow for direct life-cycle accounting for SAF, and are consistent with NZBA guidance.[ix]

Denominator – The Traffic Scope: The annual traffic metric, measured in RTKs, covers commercial aviation, inclusive of all passengers, belly freight, and dedicated cargo traffic.

---

vi Users have access to a list of qualified data providers. If a user uses a data provider not on this list, it should disclose that fact.

vii An Excel-based client reporting template and detailed written guidance are publicly available to all users. Users may share these resources with clients to request data and automate calculations.

viii SBTi, Science-Based Target Setting for the Aviation Sector, 2021, **https://sciencebasedtargets.org/resources/files/SBTi_AviationGuidanceAug2021.pdf**.

ix NZBA guidance encourages banks to include client Scope 3 emissions "where significant, and where data allows." In aviation, upstream fuel emissions comprise a significant portion of value-chain emissions and can be readily accounted for via life-cycle emissions coefficients. **https://www.unepfi.org/wordpress/wp-content/uploads/2022/08/FAQ-General_public-facing-1.pdf**.

An RTK metric was selected for the following reasons:

- It allows for passenger, belly freight, and dedicated cargo traffic to be incorporated into a single unified framework.
- It accurately reflects airline efforts to improve emissions intensity through increasing or optimizing load factors.
- It allows for a direct comparison with climate scenarios based on traffic demand forecasts. The RTK metric is consistent with current SBTi guidance and was the preferred metric in industry consultations (Appendix A).[x]

Benchmark : Mission Possible Partnership Prudent Scenario

The Pegasus Guidelines methodology references a 1.5°C-aligned roadmap that includes detailed emissions and traffic forecasts that map a pathway for the aviation sector to reach net-zero emissions by 2050. As its reference scenario, this methodology uses the MPP PRU roadmap. The MPP PRU scenario describes a trajectory to net-zero GHG emissions by 2050 that relies on technologies that either are currently available or will become available over the coming decades, according to industry consensus.[xi] MPP PRU was selected due to its granularity, robust assumptions, and stakeholder preference throughout the Pegasus Guidelines Working Group consultation processes.

The MPP PRU scenario provides annual emissions and traffic forecasts harmonized to the Pegasus Guidelines accounting scope and includes disaggregated values for passenger operations and cargo operations. Using these values, the Pegasus Guidelines methodology determines an emissions intensity benchmark for each portfolio based on the reporting year and adjusted for the relative exposure of the portfolio to passenger and cargo operations. These processes are described in Step 8. More information regarding the MPP PRU roadmap and the rationale for its selection can be found in Appendix C.

---

x See SBTi, *Science-Based Target Setting for the Aviation Sector*, 2021.

xi Mission Possible Partnership, *Making Net-Zero Aviation Possible*, 2022.

The Portfolio Alignment Score

The PAS communicates climate alignment by measuring the distance between a portfolio's emissions intensity and the 1.5°C-aligned emissions benchmark. PAS disclosures have previously been used in the shipping sector under the Poseidon Principles, the steel sector under the Sustainable STEEL Principles, and the aluminum sector under the Sustainable Aluminum Finance Framework. Though banks may elect to only disclose emissions intensity, communicating a PAS provides several benefits. By contextualizing emissions intensity against a roadmap, the PAS conveys whether a user's aviation portfolio is aligned or misaligned with pathways designed to limit warming to 1.5°C by 2100.

Additionally, under the Pegasus Guidelines methodology, each user has a customized benchmark, determined by its relative exposure to passenger and cargo aircraft and the relative mix of passenger and cargo activity for its lessor and airline clients. As a result, the PAS is an important tool for measuring real economy emissions reductions. Passenger and dedicated cargo traffic have substantially different average emissions intensities. Reporting only portfolio emissions intensity, or comparing with the industry average, could incentivize financiers to simply shift exposure to industry segments with lower emissions intensity to obtain a lower emissions intensity for their portfolio. By using a PAS that incorporates the portfolio's relative exposure to passenger and cargo aircraft, this methodology provides a more accurate portrayal of alignment.

The PAS is calculated by taking the difference between the portfolio's average emissions intensity (weighted by exposure) and the emissions intensity of the portfolio-specific benchmark, divided by the emissions intensity of the portfolio-specific benchmark:

$$\text{PAS} = \frac{\text{Portfolio Intensity} - \text{Portfolio Benchmark}}{\text{Portfolio Benchmark}}$$

The methodology for calculating portfolio emissions intensity, the portfolio benchmark, and the PAS is detailed in the subsequent nine steps.

The Nine Steps for Measuring Climate Alignment of Aviation Financing Portfolios

The following steps outline the information needed for a user to calculate both the emissions intensity of its overall aviation portfolio (Steps 1–7) and the climate alignment of an entire lending portfolio as measured by its PAS (Steps 8–9).

Step 1: Determine In-Scope Clients and Financings

The first step for a user to calculate the climate alignment of its portfolio is to identify the balance sheet items to include in its calculations and the size of their related exposure. The below is intended to provide a summary of in-scope clients and in-scope financings. For additional details, the user should refer to Appendix B.

Identifying In-Scope Clients

The following categories of clients are in scope for measurement purposes:

- Any client that operates commercial aircraft for commercial purposes (e.g., commercial airlines)
- Any client that owns commercial aircraft operated by third parties for commercial purposes (e.g., aircraft leasing companies)

Additionally, clients that do not directly own or operate commercial aircraft may be considered in scope solely due to their holding of in-scope subsidiaries. The user should seek to identify in-scope clients due to subsidiaries, with consideration of factors including, but not limited to:

- Any use-of-proceeds features of the financing
- The level of direct operational or financial support between the parent company and the in-scope subsidiary
- Whether the parent company is treated as part of the user's aviation portfolio

These criteria are intended to help inform identification of in-scope clients by users; the decision of which clients to include in scope is ultimately a matter of the user's best judgment.

For additional information on determining in-scope clients, including the treatment of integrated logistics companies (ILCs), groups with multiple air operator's certificates (AOCs), and diversified companies, see Appendix B.

Identifying In-Scope Financings and Quantifying Exposure

Once all in-scope clients have been determined, a user will subsequently identify in-scope financings to those clients and quantify the level of exposure, which will be used to calculate portfolio-level emissions intensity.

Financial products that should be reported as in-scope financings are defined as on-balance-sheet products (and items that would appear on the user's balance sheet once drawn). These products could include but are not limited to bilateral loans, syndicated loans, club deals, and direct equity stakes.

For syndicated financial products and club deals, the user should report on its portion of the financing, with the exposure amount of committed facilities proportional to its share of the total financing. See Appendix B for the full list of financial products considered in scope.

A necessary step in calculating climate alignment is the calculation of emissions intensity weighted by exposure. This calculation is outlined in subsequent steps. The exposure amount is determined by the following:

- For committed facilities, the amount of exposure is defined as the drawn and undrawn commitment on December 31 of the reporting year.

- For uncommitted facilities, the amount of exposure is defined as the outstanding utilized amount on December 31 of the reporting year.

- For equity stakes or capital markets instruments held for investment, the amount of exposure is defined as the book value of the equity stake or instrument on December 31 of the reporting year.

See Appendix B for complete guidance on determining the amount of exposure of committed facilities.

Step 2: Identify Aircraft-Specific Financings and General-Purpose Financings

The Pegasus Guidelines methodology is designed to ensure that emissions accounting accurately reflects capital allocation decisions by a user. It achieves this by differentiating between financing linked to specific aircraft and general-purpose financing.

In cases where financing is linked to particular aircraft (i.e., aircraft-specific financing), a user can and should evaluate those financings based on the emissions characteristics of the aircraft models it has chosen to finance. To allow for this, a user should determine whether a financing meets the following two features:

- Facility is secured by aircraft collateral

- Facility has a use-of-proceeds relationship to the aircraft collateral (i.e., secured aircraft purchase financing or refinancing)

Aircraft-specific financing is evaluated based on the emissions intensity of the relevant aircraft, calculated on an operator aircraft model average basis. That is, the emissions intensity for that balance sheet item is based on the average emissions and traffic generated by that model of aircraft across the entire fleet of its operator, rather than the emissions and traffic of the specific manufacturer's serial number (MSN) or of the entire airline.[xii] *Aircraft model* is defined as a combination of the aircraft's International Civil Aviation Organization (ICAO) code and whether it is a passenger or dedicated freighter aircraft. As such, aircraft models will either generate passenger and belly freight RTKs, or dedicated cargo RTKs, but not both.[xiii]

---

xii For more details on how to treat secured financings with multiple aircraft models as collateral, see Appendix B.

xiii Aircraft models associated with a financing are determined on a snapshot basis on December 31. Aircraft that have undergone a passenger/cargo conversion during the year are treated as whichever variant they are on December 31, with no prorating or other adjustments.

For example, a secured purchase financing to Airline A for a Model A passenger aircraft would be evaluated based on the average emissions intensity of the Model A passenger subfleet operated by Airline A, rather than either the individual Model A passenger aircraft used as collateral or the airline-wide average for all aircraft models operated by Airline A. Evaluating based on operator aircraft model averages prevents distortions due to factors such as maintenance timing, cabin configuration, and route assignment. This ensures two users who make identical decisions — to finance a Model A passenger aircraft for Airline A — evaluate those loans with the same emissions intensities.

General-purpose corporate financing: All other financings are evaluated based on the emissions intensity of the full operated fleet (for airlines) or owned fleet (for lessors). All unsecured financing or financing secured by a majority of non-aircraft assets (engines, building facilities, etc.) are considered general-purpose corporate financing. In cases of aircraft-secured financing where the relevant aircraft cannot be identified or data cannot be collected, or use of proceeds is clearly for general corporate purposes (i.e., not the financing or refinancing of the acquisition cost of an aircraft), a user may treat the exposure as general purpose.

Once a user has determined the relevant category for each in-scope financing, it is ready to request data from clients or qualified third-party data providers. For aircraft-secured financings, these requests will be at the operator-aircraft model level. For all other financings, these requests will be for data at the airline level or for the lessor's owned fleet.

Step 3: Measure Baseline Emissions

Please note: The majority of the work needed under Steps 3–6 will be completed via client reporting template or by a data provider, rather than being performed by a user directly.

To calculate the emissions intensity associated with each in-scope financing on its balance sheet, a user must determine the baseline emissions associated with each financing. This is done by first calculating the emissions resulting from fuel consumption of the relevant aircraft or client, then adjusting this baseline for the effects of SAF (Step 4).

WTW emissions are calculated by a reporting client or third-party provider by multiplying the annual fuel consumption of aircraft by the WTW coefficient, 3.84 grams (g) CO_2e/g fossil jet fuel. This value is derived from the ICAO standard life-cycle emissions value of 89 g CO_2e/megajoule (MJ) fossil jet fuel.[xiv] The annual emissions associated with a set of aircraft can be calculated via the equation:

$$\text{Emissions (tons } CO_2e) = \text{Fuel (tons)} \times 3.84 \text{ g } CO_2e\text{/g fossil jet fuel}$$

This calculation may be applied differently depending on whether the financing in question is an aircraft-secured facility, general-purpose exposure to an airline, or general-purpose exposure to a lessor.

For **aircraft-secured financing**, this calculation is performed by taking the operator aircraft model average. For secured financing for a single aircraft, this means emissions are calculated using the average

xiv 89 g CO_2e/MJ is the standardized reference figure provided by ICAO. To convert this to a per-gram emissions coefficient, a MJ-to-grams conversion factor is required: the specific energy (also referred to as gravimetric energy density or lower heating value [LHV]) of fossil jet fuel. This methodology currently uses an LHV of 43.2 MJ/kg to allow comparison with the MPP roadmap (Step 8).

fuel consumption for aircraft of that model in the operating airline's fleet. In cases where the user knows the individual exposure associated with each aircraft in a multiple-aircraft-secured facility, the user is encouraged to treat it as several individual aircraft-secured facilities. When a user's individual exposure cannot be associated with specific aircraft or is otherwise not known, emissions are calculated by adding up the operator aircraft model average value for each aircraft in the facility.

For **general-purpose exposure to an airline**, emissions are calculated using total annual fuel consumption across all aircraft operated by the airline.

Financing to lessors is evaluated on a look-through basis, in which emissions intensity is still determined by the operating airline. For aircraft-secured financing to lessors, this means aircraft are evaluated as though the financing had been provided directly to the operating airline, with emissions calculated based on the average fuel consumption by aircraft of the specific model operated by the leasing airline.

General-purpose exposure to lessors is treated in the same manner as secured financing for multiple aircraft models, by summing the operator aircraft model average values for each aircraft owned by the lessor. General-purpose financing to lessors should be evaluated based on the full owned fleet of the lessor. Aircraft of the same model owned by the same lessor may have different emissions values if operated by different airlines. This is a deliberate feature of the look-through approach to lessors to reflect operational efficiency differences between airline clients and treat aircraft identically regardless of whether they are airline owned or leased.

For more detailed descriptions of these scenarios, see Step 6 and Appendix E.

Step 4: Account for SAF Purchases

Before emissions intensity can be calculated, the baseline emissions (Step 3) must be adjusted to account for the effect of SAF purchases. SAF is an essential technological pathway for reducing aviation emissions on a life-cycle basis and therefore should be properly accounted for in calculating climate alignment.

Adjusting for SAF purchases involves first calculating the emissions reductions resulting from the purchase of SAF, then subtracting this value from baseline emissions totals. The Pegasus Guidelines methodology accounts for SAF use on a full life-cycle basis by comparing the life-cycle emissions for each type of SAF with the fossil fuel baseline. This approach is consistent with SBTi's guidance for calculating airline-level emissions reductions due to SAF.

ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) implementation guidance provides standard life-cycle emissions coefficients for use in the following equations.[xv] The Pegasus Guidelines methodology evaluates SAF based on airline-level purchases, including those made through trusted chain-of-custody book-and-claim systems. For more information on general SAF characteristics, life-cycle coefficients, and book-and-claim systems, see Appendix D.

Airline-Level Emissions Reductions

Because each type of SAF has a different life-cycle emissions value based on its feedstock and production pathway, the emissions reductions due to SAF purchases must be calculated separately for each type of SAF purchased by an airline. This value (in tons) is calculated via the following equation:

$$\text{Reduction} = \left(1 - \frac{\text{SAF Life-Cycle Emissions} \frac{\text{g } CO_2\text{e}}{\text{MJ}^{\text{xvi}}}}{89 \frac{\text{g } CO_2\text{e}}{\text{MJ}}}\right) \times 3.84 \frac{\text{g } CO_2\text{e}}{\text{g Fossil Jet Fuel}}^{\text{xvii}} \times \text{Quantity SAF (tons)}$$

This equation determines emissions reductions due to SAF based on the ratio of SAF life-cycle emissions to fossil fuel life-cycle emissions (on a per-MJ basis), the per-gram baseline emissions from fossil fuel, and the quantity of the given type of SAF purchased.

For the **purchasing airline**, the total emissions avoided from all its SAF purchases is calculated by summing the emissions reductions resulting from each type of SAF purchased.

For **general-purpose financing to airlines**, these emissions reductions can be applied directly to the airline-level emissions total. The emissions intensity of the overall airline would be calculated using emissions values adjusted for the emissions reductions due to SAF as follows:

$$\text{Airline Intensity} = \frac{\text{Baseline Emissions} - \text{Total Emissions Reductions}}{\text{Traffic}}$$

where the baseline emissions are the total quantity of fuel (including SAF) consumed, multiplied by the 3.84 WTW coefficient. This approach is consistent with current SBTi guidance and directly credits airlines with the full life-cycle emissions reductions created by the use of SAF.

Aircraft-Secured and Lessor Emissions Reductions

Due to physical and theoretical challenges to tracking SAF consumption at the individual aircraft level or aircraft model level, the Pegasus Guidelines methodology does not attempt to attribute SAF purchases

---

xv ICAO, *CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels*, 2022.

xvi Standardized SAF life-cycle emissions are provided on a per-MJ basis. This is divided by the per-MJ life-cycle emissions of fossil jet fuel to produce a unitless coefficient, which is then multiplied by the per-gram fossil jet fuel life-cycle emissions to produce a per-gram emissions reduction figure.

xvii Note that current CORSIA offsetting requirements prorate SAF emissions reductions to apply to only the tank-to-wake (TTW) portion of emissions by replacing this 3.84 WTW value with the 3.16 TTW equivalent. See ICAO, Annex 16, Vol. 4, Part 2, Chapter 3, Section 3.3.1, 2018.

to individual aircraft or subfleets. Instead, SAF is treated as if spread uniformly across an airline's full operational fleet, with each aircraft having the same proportional reduction in its emissions. Incorporating SAF emissions reductions at the aircraft model level is important because it ensures that aircraft-specific financing is not systematically penalized compared with general corporate exposure, as would occur if SAFs were only accounted for in full-fleet totals.

The first step to account for the use of aircraft-model-level SAF is to calculate the operating airline's fleet-wide emissions reduction percentage due to SAF purchases (referred to as SAF emissions reduction percentage [SERP]). This is the percentage reduction from their baseline emissions to their adjusted emissions (after accounting for SAF), as shown by the following:

$$\textbf{Airline SERP} = \frac{\textbf{Emissions Reduction}}{\textbf{Baseline Emissions}}$$

A user will be able to use a reporting template, made available by contacting RMI, which can be provided to clients. The reporting template will automatically calculate this value based on the SAF purchase and fuel consumption values supplied by the reporting airline.

Once the SERP has been calculated, it is applied uniformly to all aircraft in the operating fleet. This means the emissions value, once adjusted for SAF, for any given aircraft model can be calculated as follows:

$$\textbf{Adjusted Emissions} = \textbf{Model-Specific Baseline Emissions} \times (1 - \textbf{SERP})$$

For aircraft-secured financing or general-purpose exposure to lessors, this adjustment is applied at the operator aircraft model average level before summing the values for each aircraft linked to the financing.

For detailed examples on SAF emissions adjustments, see Appendix E.

Step 5: Measure Traffic

Once the emissions have been determined, a user must source traffic measurements for each in-scope item on its balance sheet. Traffic is measured as the annual traffic generated by passenger (including belly freight) or dedicated cargo aircraft in RTKs.[xviii]

Airlines typically record passenger traffic in terms of revenue passenger kilometers (RPKs). To convert to RTKs, the Pegasus Guidelines methodology uses the International Air Transport Association (IATA) default factor of 100 kg per passenger, including luggage.[xix]

---

xviii Belly cargo must be revenue-generating cargo and does not include passenger luggage. Traffic generated by belly cargo is treated equivalently to traffic generated by passengers; the emissions intensity associated with a ton of belly cargo is always equal to the emissions intensity associated with a ton of passengers on the same aircraft.

xix IATA, *IATA Recommended Practice from 2022*, 2022. Alternatively, airlines may directly record RTKs generated by passengers, or apply their own weight conversion factors according to IATA guidance to report RTKs.

According to the Pegasus Guidelines methodology, the total traffic of a passenger aircraft (assuming RPKs are reported) is:

$$\text{Traffic} = \text{RPKs} \times \frac{100\text{ kg}}{1{,}000} + \text{Belly Cargo RTKs}$$

For dedicated cargo aircraft, traffic is measured directly in RTKs.

For **aircraft-secured financing**, the relevant traffic for a reporting year is the average traffic generated by all aircraft of that model operated by the operating airline.

For **general-purpose exposure to an airline**, the relevant traffic for a reporting year is the total traffic generated by all aircraft of all models across the entire operator fleet. This will be broken out by passenger aircraft traffic (including belly freight) and dedicated cargo aircraft traffic by either client reporting or from third-party-provided data to help quantify a user's relative exposure to passenger and cargo activity (see Steps 8 and 9).

For **general-purpose exposure to a lessor**, the relevant traffic for a reporting year is the sum of traffic from each aircraft owned by that lessor, calculated on an operator-aircraft model basis. This will be provided broken out by passenger aircraft traffic (including belly freight) and dedicated cargo aircraft traffic in either direct client reporting or in third-party-provided data.

For more detailed descriptions of these scenarios, see Step 6 and Appendix E with complete sample calculations.

Step 6: Calculate Emissions Intensity of Each Balance Sheet Item

Once the user has determined the emissions and traffic associated with each in-scope financing, it can determine the emissions intensity associated with each financing. This is provided directly through client reporting templates or by a qualified data provider.

The general equation to calculate emissions intensity by dividing total CO_2e emissions by traffic is as follows:

$$\text{Emissions Intensity} = \frac{\text{Emissions}}{\text{Traffic}} = \frac{\text{Fuel (g)} \times 3.84 \frac{\text{g } CO_2\text{e}}{\text{g Fossil Jet Fuel}} \times (1 - \text{SERP})}{\text{RTKs (Passenger, Belly Freight, Dedicated Cargo)}}$$

This equation for emissions intensity will differ slightly depending on the type of in-scope financing, including aircraft-secured financing with a single aircraft as collateral, aircraft-secured financing with multiple aircraft as collateral, general-purpose exposure to an airline, and general-purpose exposure to a lessor. Each of these is described below:

Aircraft-Secured Financing with One Aircraft

For aircraft-secured financing with a single aircraft as collateral, the relevant intensity is the operator-aircraft model average for that aircraft. This is calculated as the average emissions for aircraft of that model operated by the reporting airline in the reporting year divided by average RTKs for aircraft of that model operated by the reporting airline in the reporting year.

$$\text{Intensity} = \frac{\text{Operator Model Average Emissions}}{\text{Operator Model Average RTKs}}$$

Aircraft-Secured Financing with Multiple Aircraft

In cases where a user knows the individual exposure associated with each aircraft in a facility, it is encouraged to treat each aircraft as its own facility and apply the approach described above to each aircraft. If a user opts to implement this approach, it should be done consistently for all multiple-aircraft-secured facilities where individual aircraft exposure is known.

For aircraft-secured financing with multiple aircraft as collateral where individual aircraft exposure is not known, the operator aircraft model average values for each of the aircraft need to be combined into a single figure. This is calculated as the sum of the operator aircraft model average emissions for each aircraft in the facility, divided by the sum of the operator aircraft model average RTKs for each aircraft in the facility.

$$\text{Intensity} = \frac{\sum \text{Operator Model Average Emissions}}{\sum \text{Operator Model Average RTKs}}$$

General-Purpose Financing to Airlines

For any general-purpose exposure to an airline client, the relevant intensity is the airline-level average emissions intensity across all aircraft of all models operated by that airline. This is either recorded directly or calculated as the sum of all aircraft emissions divided by the sum of all aircraft RTKs.

$$\text{Intensity} = \frac{\sum \text{Aircraft Emissions}}{\sum \text{Aircraft RTKs}}$$

General-Purpose Financing to Lessors

For general-purpose exposure to a lessor client, the operator aircraft model average values for each aircraft owned by the lessor need to be combined into a single figure. This is done in the same way as aircraft-secured financing with multiple aircraft, treating the full pool of aircraft owned by the lessor as the relevant aircraft. This approach preserves the look-through approach for lessor exposure and avoids introducing MSN-level factors such as route assignments, which lessors do not control. As with aircraft-secured financing with multiple aircraft, the lessor's emissions intensity is calculated as the sum of the operator-aircraft model average emissions divided by the sum of the operator aircraft model average RTKs.

$$\text{Intensity} = \frac{\sum \text{Operator Model Average Emissions}}{\sum \text{Operator Model Average RTKs}}$$

For detailed examples of these calculations, see Appendix E.

The data provider or client should complete Steps 3–6 for each item covered by these guidelines on the user's balance sheet.

Step 7: Calculate Portfolio-Level Emissions Intensity

After the data provider or client has completed Steps 3–6, the user will have the emissions intensity value associated with each in-scope balance sheet item. A user must now aggregate these values into a single portfolio-level value by taking the exposure-weighted average of the emissions intensity of each in-scope financing.

This is done via the following equation, where w_i is the exposure to balance sheet item i, and I_i is the emissions intensity associated with that balance sheet item:

$$\text{Portfolio Intensity} = \frac{\sum w_i I_i}{\sum w_i}$$

Exposure is defined as follows:

- For committed facilities, the amount of exposure is defined as the drawn and undrawn commitment on December 31 of the reporting year.
- For uncommitted facilities, the amount of exposure is defined as the outstanding utilized amount on December 31 of the reporting year.
- For equity stakes or capital markets instruments held for investment, the amount of exposure is defined as the book value of the equity stake or instrument on December 31 of the reporting year.

The portfolio in Exhibit 1 demonstrates examples of emissions intensity and exposure associated with example in-scope financings in a balance sheet.

Exhibit 1 **Example portfolio intensity inputs**

Balance sheet item	Exposure ($ millions)	Intensity (g CO_2 e/RTK)
1	80	922.5
2	175	732.1
3	250	920.7
4	50	865.2

RMI Graphic. Source: RMI analysis

Using these values, the portfolio-level average emissions for the example portfolio are calculated as:

$$\text{Portfolio Intensity} = \frac{(80 \times 922.5) + (175 \times 732.1) + (250 \times 920.7) + (50 \times 865.2)}{(80 + 175 + 250 + 50)} = 865.5 \frac{g\,CO_2e}{RTK}$$

The user may disclose this portfolio-level emissions intensity, and/or use this value in the subsequent steps to calculate and disclose the PAS.

Step 8: Calculate the Benchmark, Customized to Each User

To calculate the climate alignment of its portfolio, a user will first determine its benchmark for the reporting year. Under the Pegasus Guidelines methodology, each user has its own specific benchmark to reflect its relative exposure to passenger operations and dedicated cargo operations. These benchmarks are calculated from the MPP PRU roadmap emissions and traffic values for passenger and cargo operations. A user with greater-than-average exposure to cargo operations will have a benchmark emissions intensity below the industry average because cargo aircraft have substantially lower emissions intensities than passenger aircraft.

Determining a relevant benchmark for each financing ensures that portfolios are not systematically penalized or rewarded for having greater exposure in cargo or passenger operations. A general-purpose financing to a cargo-heavy airline will have a lower emissions intensity than a general-purpose financing to a passenger-heavy airline, but it will also produce a lower emissions intensity benchmark value.

To calculate its portfolio benchmark, a user first determines the relevant benchmark value for each in-scope financing on its balance sheet:

- For secured financing to passenger aircraft, the relevant benchmark is the passenger benchmark.
- For secured financing to cargo aircraft, the relevant benchmark is the cargo benchmark.
- For all other financing, the relevant benchmark depends on the relative share of passenger and cargo aircraft activity at the airline, lessor, or group of aircraft.

The relevant benchmark for each balance sheet item can be calculated via the equation:

$$\text{Benchmark} = \frac{(\text{Passenger Benchmark} \times \sum(\text{Passenger RTKs} + \text{Belly Cargo RTKs})) + (\text{Cargo Benchmark} \times \sum \text{Cargo RTKs})}{\sum(\text{Passenger RTKs} + \text{Belly Cargo RTKs}) + \sum \text{Cargo RTKs}}$$

The passenger benchmark and cargo benchmark values come directly from the MPP PRU roadmap in the relevant year. Passenger RTKs and cargo RTKs are the same values used to calculate emissions intensity and are supplied either via client reporting templates or third-party data providers.

To calculate portfolio-level alignment, a user must aggregate the benchmarks associated with each individual in-scope financing into a single portfolio-level value. As with emissions intensity, this is done by taking the exposure-weighted average of each benchmark:

$$\text{Portfolio Benchmark} = \frac{\sum w_i B_i}{\sum w_i}$$

where w_i is the exposure to balance sheet item i, and B_i is the benchmark associated with that balance sheet item. This portfolio-level benchmark is based directly on the MPP PRU scenario and will fall between the passenger-only 1.5°C trajectory and the cargo-only 1.5°C trajectory, depending on the relative exposure of the portfolio to each.

Exhibit 2 provides values for the exposure and benchmark intensity associated with each in-scope balance sheet item for a 2024 portfolio.

Exhibit 2 **Example portfolio benchmark inputs**

Balance sheet item	Exposure ($ millions)	Benchmark emissions intensity $\left(\frac{g\,CO_2e}{RTK}\right)$	MPP PRU 2024 passenger aircraft intensity $\left(\frac{g\,CO_2e}{RTK}\right)$	MPP PRU 2024 dedicated cargo aircraft intensity $\left(\frac{g\,CO_2e}{RTK}\right)$
1	80	962.7	962.7	649.3
2	175	824.7	962.7	649.3
3	250	960.5	962.7	649.3
4	50	757.4	962.7	649.3

RMI Graphic. Source: RMI analysis

Using these values, the portfolio-level benchmark is calculated as:

$$\text{Portfolio Benchmark} = \frac{(80 \times 962.7) + (175 \times 824.7) + (250 \times 960.5) + (50 \times 757.4)}{(80 + 175 + 250 + 50)} = 889.4 \, \frac{g\,CO_2e}{RTK}$$

This value would then be used by a user to calculate its PAS. For a more detailed walkthrough of this example, see Appendix E.

Step 9: Calculate Portfolio Alignment Score

After completing Steps 1–8, a user has all the inputs needed to calculate its PAS. This score shows the difference between a user's measured portfolio intensity and the benchmark 1.5°C-aligned intensity associated with its portfolio for that year.

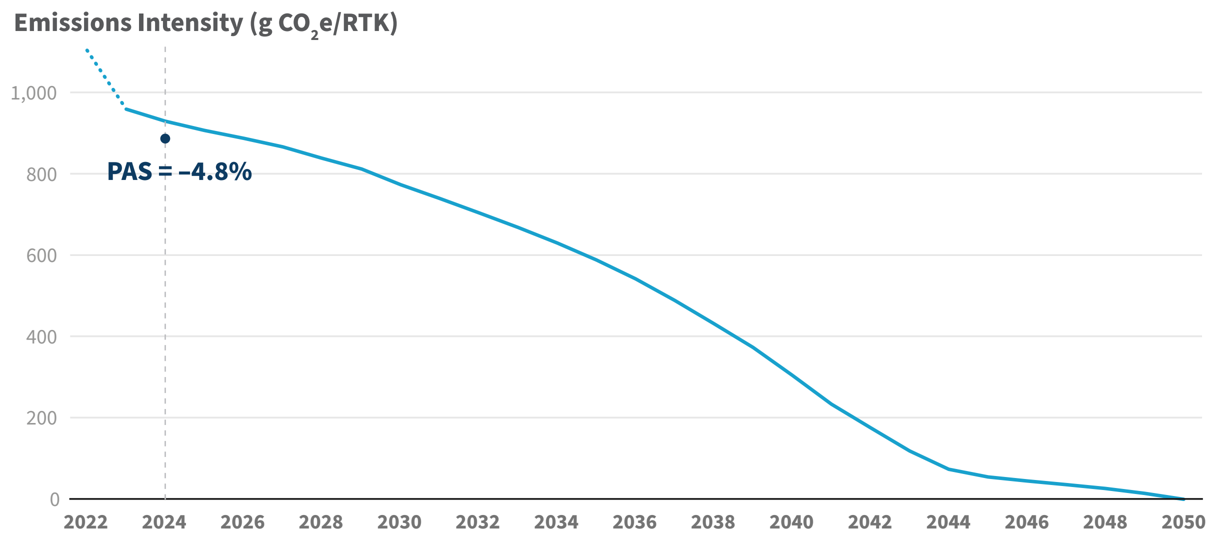
The PAS is calculated via the equation:

$$\text{PAS} = \frac{\text{Portfolio Intensity} - \text{Portfolio Benchmark}}{\text{Portfolio Benchmark}}$$

Using this formula, a portfolio with an emissions intensity of 856.5 and a benchmark intensity of 889.4 would have a PAS of −0.048, or −4.8%, indicating the portfolio intensity is 4.8% below the benchmark and therefore is 1.5°C-aligned (see Exhibit 3).

In contrast, a portfolio with an emissions intensity of 840 and a benchmark of 800 would have a PAS of +0.05, or +5%, indicating the portfolio intensity exceeded the benchmark by 5% and is not climate-aligned.

Exhibit 3 Example alignment reported against the MPP PRU roadmap in 2024



Note: MPP PRU Scenario, with IATA traffic data 2020-23. Actual benchmark values depend on relative portfolio exposure to passenger and cargo aircraft in the reporting year. Reference benchmark shown for this example assumes industry-average passenger/cargo composition.

RMI Graphic. Source: MPP 2022, IATA 2023, RMI analysis

Voluntary Use of the Roadmap for Target Setting

Target setting is not required under the Pegasus Guidelines, nor is a user obligated to achieve a specified emissions intensity or PAS.

If a user elects to use the Pegasus Guidelines methodology for setting targets on a voluntary and independent basis, it may use the MPP PRU scenario and can set a PAS target of 0, which equates to alignment with 1.5°C. However, each user retains full discretion on whether and how to set its own independent targets in line with its own business goals.

IV. Guideline 2: Consistent Approach to Data Access

This section details how a user can source data in a consistent manner in the interest of standardization and comparability.

Guidelines

The user is encouraged to calculate its climate alignment with data sourced directly from clients. Alternatively, when primary data is not available directly from a client, a user can source data from a qualified third-party data provider. The list of qualified data providers is made available to all users. If a user does not use a data provider from this list, the user should disclose that fact, though the user is not required to disclose which data provider it did use.

A user is encouraged to request the provision of data in financial contracts. An example covenant clause can be obtained via RMI for all new financings covered by the methodology. The use of this example clause is voluntary, and a user is free to use alternative language that conveys the same meaning.

Sourcing Client-Reported Data

To standardize data requests and reduce the potential reporting burden for clients, the Pegasus Guidelines provides resources to a user to facilitate sourcing data. These resources include:

1. **A client reporting template:** This template provides a structured and standardized form for clients to provide the essential fuel and RTK data to their lenders in order to complete the Pegasus Guidelines calculations. This reporting template has been tested with industry for clarity and usability.

2. **Accompanying technical reporting guidance for clients:** This client-facing guidance provides detailed information on the scope of data collection, definitions, and unit conversion values to ensure compatibility between data sourced from different clients.

3. **Stock covenant clause language:** This is for voluntary use by users in order to request data from clients via loan documentation, provided publicly on the RMI website,[xx] as an optional resource for users to support standardization.

A user is encouraged to use these resources wherever possible in requesting client data. If a user obtains client data using an alternative reporting template or collection platform, the data obtained should meet the specifications outlined in the request template and reporting guidance in order to ensure data quality and comparability.

---

xx https://climatealignment.org/focus-areas/

Sourcing Data from Qualified Providers

Where client data is not directly available, a user may source data from any third-party data provider that has been deemed as qualified by RMI. If a user wishes to contract with more than one qualified data provider, it should take the average values provided by the contracted data providers to calculate its portfolio emissions intensity. If a user chooses to source data from a data provider that does not appear on the qualified list, it should must disclose in its annual report its choice to source from a nonqualified data provider. A user is at no point required to disclose the name of the provider(s) from which it sources data.

To ensure availability of high-quality and comparable data from third-party commercial providers, RMI maintains a detailed technical standard for third-party data, with explicit criteria defining Pegasus Guidelines–compatible data. This data standard is required to ensure a consistent application of definitions, conversion values, calculation methodologies, and other technical inputs. In the absence of a qualification process, there would likely be significant inconsistencies in the data reported to users, which could result in discrepancies between values for the same counterparties, thereby undermining the goal of comparability and standardization across the sector. These data consistency concerns explain the expectation for a user to disclose in its annual report if it sources data from a nonqualified data provider.

To qualify, third-party data providers undergo a rigorous qualification process administered by RMI, in which the providers give detailed information demonstrating their ability to follow the technical requirements of the Pegasus Guidelines data standard. Qualification is performed via an open process, and qualified providers are required to periodically requalify their products to ensure continued quality.

“To ensure availability of high-quality and comparable data from third-party commercial providers, RMI maintains a detailed technical standard for third-party data, with explicit criteria defining Pegasus Guidelines–compatible data.”

The list of qualified providers may be amended from time to time (i.e., to include new qualified providers) and can be found on the RMI website. Qualification will be held on a regular cadence for both requalifying existing providers and qualifying new providers. Additional qualification processes may be conducted in response to market conditions and as determined by RMI.

V. Guideline 3: Annual Disclosure

This section outlines the disclosure guidance for the Pegasus Guidelines.

Guideline

1. **A user reports the following in its own institutional reporting on an annual basis:**
    a. **Its PAS and/or emissions intensity**
    b. **Parameters used for calculations**
    c. **If the user uses a data provider that does not appear on the qualified data provider list**
2. **A user is also encouraged to report a brief narrative to contextualize its PAS and/or emissions intensity in its own institutional reporting.**
3. **A user should publicly acknowledge using the Pegasus Guidelines in its own institutional reporting.**

In its annual disclosure, a user should not disclose any commercially sensitive information or any information regarding its individual clients.

In addition to the PAS and/or emissions intensity, calculated using the Pegasus Guidelines methodology (as detailed in Section III), the user is also expected to disclose information on the parameters used for reporting. **These parameters include:**

1. Whether any voluntary products (as defined in Appendix B) were included in the calculation, and if so, which products;
2. If financings to ILCs other than secured aircraft purchase finance are included;
3. If the user voluntarily reported financings with an initial tenor shorter than one year;
4. If, in the instance a user is not able to calculate exposure using committed values, it has reported using utilized values in lieu of committed values as a fallback option (see Appendix B for additional details);
5. A user should also disclose if it sources data from a nonqualified third-party data provider. Please note, a user is not required to disclose the name of which provider(s) it sources data from.

In addition to the above information, the user is also encouraged to disclose its portfolio emissions intensity and a brief narrative providing context to its disclosures. If disclosing portfolio emissions intensity, emissions intensity should be calculated as detailed in Section III.

If the user chooses to disclose a brief narrative, this narrative may contain any of the following information, although the user will ultimately determine what, if any, information to include:

1. Key takeaways from its PAS and/or emissions intensity
2. The institution's climate target(s) and plans for achieving a PAS and/or emissions intensity that is 1.5°C-aligned (although stating or achieving a target is not required under the Pegasus Guidelines)
3. Geographic or geopolitical considerations relevant to its PAS and/or emissions intensity
4. Dedicated financings for assets not yet operational

The user should also publicly acknowledge its use of the Pegasus Guidelines. A summary of the disclosures is shown in Exhibit 4.

Exhibit 4 **Reporting guidelines**

What to report	Needed or voluntary?
PAS and/or emissions intensity	At least one needed
Parameters used for reporting	Needed
If data is sourced from a nonqualified third-party data provider	Needed
Public acknowledgment	Needed
Brief narrative	Voluntary

RMI Graphic. Source: RMI analysis

VI. Maintaining the Framework

The Pegasus Guidelines are intended to be updated as the sector evolves. For example, new scenarios may become available, new technologies may emerge, and there may be changes in the regulatory environment that prompt updates to this framework to ensure relevance and consistency with other initiatives. RMI will be responsible for all updates but will engage an advisory group of users and other stakeholders as outlined below.

Financial institutions that use the Pegasus Guidelines will have the opportunity to inform technical and methodological updates through participation in the advisory group. Advisory group members commit to meeting annually to discuss the status of the framework and advise RMI as to whether updates are required to ensure the framework remains relevant and effective. In addition, input from advisory group members will be requested on an ad hoc basis.

Participation in the advisory group will be open to financial institutions who participated in the original Pegasus Guidelines Working Group (2022–24), as well as to additional users of the Pegasus Guidelines. All users will be invited to join the advisory group. However, the number of members is capped at 10 and priority will be given to members of the Pegasus Guidelines Working Group and banks who adopted the methodology at its inception.

Prior to the advisory group annual meeting, RMI will determine whether to recommend updates to the framework. To inform this recommendation, RMI will survey the sector to identify whether material changes have occurred across other methodologies, scenarios, or data availability, as well as sectoral and climate finance initiatives.

If an update is determined to be necessary, RMI will conduct the work to update the framework in consultation with external stakeholders. Consultation will entail engaging industry members, civil society, and other financial institutions to source feedback on the use of the framework and the proposed updates. Advisory group members are expected to support RMI in the consultation process; however, RMI will be the developer and the ultimate decision-making authority on the methodology updates.

VII. Glossary

Aircraft model: Generic term for a category of aircraft that can refer to multiple different classification schemes. Under the Pegasus Guidelines, *aircraft model* always refers to the combination of an ICAO code and passenger/freighter designation, rather than alternate definitions such as an IATA code (see ICAO code definition below). For example, “A321neo Passenger” and “B767 Cargo” are both aircraft models under the Pegasus Guidelines methodology, but “A320neo (sharklets)” is not.

Air operator’s certificate (AOC): The approval received by a civil aviation authority to an aircraft operator that allows the aircraft operator to use the aircraft commercially.

Belly freight: Paying freight transported in the hold of a passenger aircraft during commercial passenger operations. Passenger luggage is not included in belly freight totals. Also referred to as belly cargo.

Book and claim: A system in which one airline pays the price premium for SAF in order to claim its environmental benefits, but another airline may actually use the physical SAF. The Pegasus Guidelines methodology intends to recognize book-and-claim SAF purchases via existing industry registries. See “Book-and-claim,” Roundtable on Sustainable Biomaterials Association (RSB), 2023.

CO_2e: Incorporates the impacts of non-CO_2 Kyoto Protocol GHGs. In aviation applications, non-CO_2 Kyoto Protocol GHGs make up a negligible portion of emissions at the point of combustion but are a significant contributor for the well-to-tank portion of the fuel life cycle. As a result, tank-to-wake (TTW) emissions metrics are typically labeled as CO_2 metrics, while WTW emissions metrics including the ICAO reference value are CO_2e metrics. All metrics under this standard are expressed in CO_2e, as is the reference 1.5°C roadmap. Note this does not include non-Kyoto-Protocol GHG impacts such as contrails and radiative forcing.

Commercial aircraft: An aircraft that transports passengers, cargo, or mail for remuneration or hire, not including corporate business aviation. See “Tenth Session of the Statistics Division, Appendix B,” ICAO, 2009.

Commercial purposes: Operations used for transporting passengers, cargo, or mail available to the public for remuneration or hire. See “Tenth Session of the Statistics Division, Appendix B,” ICAO, 2009.

Dedicated cargo: Paying cargo transported on aircraft used specifically for the transport of cargo, without paying passengers on board.

Emissions reduction factor (ERF): Measurement of the reduction in emissions created by a SAF when compared with the WTW life-cycle emissions baseline for fossil fuel. For instance, an SAF with life-cycle emissions of 32.5 g CO_2e/MJ, when compared with the fossil jet fuel baseline of 89 g CO_2e/MJ, has an ERF of (89 – 32.5)/89 = 63.48%. Reference value varies by fuel type. See “Sustainable Aviation Fuel Certificate (SAFc) Emissions Accounting and Reporting Guidelines,” World Economic Forum, 2022.

Fossil jet fuel: Set of fossil jet fuels treated by ICAO CORSIA standards that have the same emissions and energy density properties. Includes Jet A1, Jet A, Jet-B, TS-1, and No. 03 Jet Fuel. See “CORSIA Methodology for Calculating Actual Life Cycle Emissions Values,” ICAO, 2022.

Fossil jet fuel life-cycle emissions coefficient (g CO_2e/g fossil jet fuel): Default value for the life-cycle (WTW) emissions of fossil jet fuel in mass-per-mass units. Calculated using the g/MJ ICAO reference figure and the specified lower heating value (LHV). Referenced as 3.84 g CO_2e/g fossil jet fuel.

Fossil jet fuel life-cycle emissions coefficient (g CO_2e/MJ): Default value for the life-cycle (WTW) emissions of fossil jet fuel. Used for calculating the emissions reduction factors of SAFs under current ICAO CORSIA guidance. Referenced as 89 g CO_2e/MJ. See “CORSIA Methodology for Calculating Actual Life Cycle Emissions Values,” ICAO, 2022.

Fossil jet fuel lower heating value (LHV): MJ of heat energy per kg of fossil jet fuel. Used to convert g CO_2e/MJ life-cycle emissions value into a g CO_2/g fossil jet fuel coefficient for calculating emissions based on fuel consumption. Also called specific energy or gravimetric energy density. The Pegasus Guidelines methodology uses as reference value of 43.2 MJ/kg fossil jet fuel to allow direct comparison with MPP modeling. See *Making Net-Zero Aviation Possible*, Mission Possible Partnership, 2022.

Fossil jet fuel volumetric density: Volume of jet fuel corresponding to a given mass (in metric units). Referenced as 2.93369 kg/gal. See “Standard Specification for Aviation Turbine Fuels,” ASTM, 2022.

g CO_2e: Grams of carbon dioxide equivalent referred to as total life-cycle emissions.

International Civil Aviation Organization (ICAO) code: ICAO classification system for aircraft models. Used by the Pegasus Guidelines methodology to group individual aircraft together for reporting purposes. See “DOC 8643 — Aircraft Type Designators,” ICAO, 2023.

Mission Possible Partnership “Prudent” (MPP PRU): An aviation-specific scenario that describes a trajectory to net-zero GHG emissions by 2050 that relies on technologies that either are already available or will enter the market over the coming decades, according to industry consensus. Based on prudent technology improvement assumptions, this scenario posits the deployment of a diversified mix of technologies.

Non-aircraft asset: An asset that does not include aircraft, such as engines, building facilities, slots, equipment, shares, and aircraft that are not in scope (i.e., helicopters, military and corporate jets).

Revenue passenger kilometer (RPK): Unit of traffic measurement that indicates that one paying passenger has been transported 1 km aboard an aircraft.

Revenue ton kilometer (RTK): Unit of traffic measurement that indicates that 1 ton of paying cargo or passengers has been transported 1 km aboard an aircraft. Used as the standard unit of traffic for the Pegasus Guidelines methodology.

RPK-to-RTK conversion factor: Standard assumed weight of a passenger and luggage, used to convert RPK traffic figures to RTK measures where necessary. Default value supplied in cases where airlines do not have access to a more specific conversion factor. Referenced as 100 kg per passenger or 0.1 RTK per RPK. See “IATA Carbon Offset Program — FAQ,” IATA, 2022.

Sustainable aviation fuel (SAF): Fuels with substantially lower emissions than fossil jet fuel when measured on a life-cycle basis. Examples of SAF include biofuels or synthetic fuels created from captured carbon feedstocks. Life-cycle emissions values vary significantly by fuel type, and different jurisdictions have maximum life-cycle emissions values to qualify as a SAF. SAF includes both biofuel and synthetic fuel, also called e-fuel or power-to-liquid (PtL) fuel. Reference value varies by fuel type. See "Sustainable Aviation Fuel Certificate (SAFc) Emissions Accounting and Reporting Guidelines," World Economic Forum, 2022.

SAF life-cycle emissions value: Emissions produced by the consumption of a unit of SAF across its full life cycle from feedstock creation through combustion. Compared with the life-cycle emissions of fossil fuel to calculate an emissions reduction factor. Reference value varies significantly by fuel type. Standard reference values by fuel type are supplied by ICAO. See *CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels*, ICAO, 2022.

Tank-to-wake (TTW): Emissions from fuel consumption measured at the point of combustion. This typically does not vary by fuel type because the upstream negative emissions from feedstock production for sustainable aviation fuels are not captured. Referenced as 3.16 g CO_2/g fossil jet fuel. See "CORSIA Methodology for Calculating Actual Life Cycle Emissions Values," ICAO, 2022.

User: A participating financial institution that has adopted the Pegasus Guidelines and is using, or intends to use, the methodology for reporting on the aviation portfolio emissions.

Well-to-wake (WTW): Emissions measured across the full life cycle of a fuel, from extraction through combustion. Commonly used in transportation sectors to capture the major emissions impact of the value chain. Equivalent to airline Scope 1 plus airline Scope 3 Category 3 emissions under the GHG Protocol. Reference value varies by fuel type. See *Science-Based Target Setting for the Aviation Sector*, SBTi, 2021.

VIII. Appendices

Appendix A: Consultation Process and Stakeholder Participation

Pegasus Guidelines Working Group

Background: RMI's Center for Climate-Aligned Finance facilitated the Pegasus Guidelines Working Group, comprised of BNP Paribas, Credit Agricole CIB, Citi, Societe Generale, and Standard Chartered. To ensure the framework reflected the market realities of the sector, industry members, technical experts, and peer financial institutions provided input to the various components of the Pegasus Guidelines.

Stakeholder involvement: Stakeholder engagement was organized into three different groups to source feedback. The Expert Group was comprised of climate-focused non-governmental organizations (NGOs), academic experts, aviation consultants, fuel producers, and aviation trade associations. The Industry Group consisted of airlines, lessors, and original equipment manufacturers (OEMs). Finally, the Working Group consulted with peer financial institutions that made up the Review Group.

Consultations:

- Methodology and Roadmap (November 2022 – January 2023): The first consultation process to gather feedback on the proposed methodology and selected roadmap occurred over three months and included two webinars (one for the Industry and Expert Groups in November and another for the Review Group the following January). This consultation invited feedback, either written or through bilateral conversations, on the proposed methodology and gauged support for the selected intensity metric and roadmap before proceeding with the remaining components of the proposal.

- Client-Reported Data Guidance (June 2023): Select industry members tested the draft client-reported data guidance to ensure it was useable in practice and not unnecessarily burdensome.

Appendix B: Determining In-Scope Financings for Pegasus Guidelines Methodology

Under the Pegasus Guidelines methodology, a user obtains data on the emissions intensity of its clients' aircraft operations and then performs calculations to measure the climate alignment of its lending portfolio. The following provides guidance to a user to support consistency in the calculation methodology by defining the universe of clients and financings that are included for the purpose of such calculations. This guidance is intended to align with the existing reporting guidelines of NZBA. Although it is currently only applicable to on-balance-sheet financing (and items that would appear on the user's balance sheet once drawn), it may be updated over time to include facilitated capital markets activities.

To report on portfolio alignment under the Pegasus Guidelines methodology, a user must calculate the emissions intensity associated with all balance-sheet-items that are considered in-scope and take the exposure-weighted average of the emissions intensity of each item on the balance-sheet. The following guidance is provided for use by the user to determine on a best-efforts basis which financings are in-scope for calculation of its Portfolio Alignment Score and/or emissions intensity.

Identifying In-Scope Clients

The following categories of clients will be considered in-scope:

I. Any client that operates Commercial Aircraft for Commercial Purposes, e.g., commercial airlines
II. Any client that owns Commercial Aircraft operated by third parties for Commercial Purposes, e.g., aircraft leasing companies

As defined in the scope of the Pegasus Guidelines methodology, Commercial Purposes includes only the transport of paying passengers and cargo; it excludes private civilian aviation, helicopters, corporate private jet aviation, military, or governmental aviation. Original equipment manufacturers, aircraft maintenance and services, engine leasing, and airports are not included in scope.

Secured aircraft purchase finance provided to ILCs should be included in scope where possible. A user may determine on a case-by-case basis whether other types of financing (i.e., unsecured) for integrated logistics companies should be treated as part of its aviation portfolio. If a user does include voluntary financings in its calculations, it must indicate as such in its annual reporting (see Section V, "Annual Disclosure"). Financing other than secured aircraft purchase financing to an integrated logistics company may be pro-rated based on revenue share. See subsequent sections for relevant guidance.

A user should identify the relevant counterparty for each item of financing based on the contractual counterparty and/or use of proceeds, which may be at the individual AOC level or at the parent group level. The relevant counterparty is determined on a "snapshot" basis as of December 31st of the reporting year. Financing provided to a specific AOC should not be aggregated up to the group level, nor should group-level financing be limited to a specific AOC absent contractual or use-of-proceeds factors. In the case that a counterparty has an in-scope subsidiary, such as a sub-AOC, the traffic and emissions generated by that subsidiary should be included in all calculations.

For example, the emissions associated with financing provided directly to British Airways should be independent of emissions from its parent company, the International Airlines Group (IAG). Conversely, where financing has been provided to IAG, emissions must be accounted for across the parent company, including emissions from subsidiaries such as British Airways. Where possible, users are encouraged to disaggregate loans to parent groups down to the individual airline, if use of proceeds is known, i.e., treat a facility to IAG as multiple sub-facilities to British Airways, Iberia, etc. An entity is considered to have a subsidiary if it holds a direct or indirect ownership stake of more than 50% of the voting equity of another entity or otherwise exercises operational controls another entity. Emissions and traffic from subsidiaries should not be pro-rated based on equity share.

Clients which do not directly own or operate commercial aircraft may be considered in-scope solely due to their holding of in-scope subsidiaries. For example, a holding company with a controlling stake in an airline, but without any direct aviation activities, is considered in scope. A user should identify clients which are in-scope due to subsidiaries, with consideration to factors including, but not limited to:

- Any use-of-proceeds features of the financing,
- The level of direct operational or financial support between the parent company and the in-scope subsidiary,
- Whether the parent company is treated as part of the user's aviation portfolio.

These criteria are intended to help inform identification of in-scope clients by users; the decision of which clients to include in scope is ultimately performed on a best-efforts basis.

<u>Identifying In-Scope Financings</u>

Once all in-scope clients have been determined, a user will subsequently identify in-scope financings to those clients and quantify the level of exposure, used to calculate portfolio-level emissions intensity.

Financial products that should be reported as in-scope financings are defined as on-balance-sheet products (and items that would appear on the user's balance sheet once drawn). These products could include but are not limited to bilateral loans, syndicated loans, club deals, and direct equity stakes (Exhibit B1). For syndicated financial products and club deals, the user should report on its portion of the financing, with the exposure amount of committed facilities proportional to its share of the total financing.

Exhibit B1 is not comprehensive, and individual balance-sheet items may not fall clearly into one of the categories defined here. The user should use these examples to determine whether each item on its balance sheet is in-scope.

Exhibit B1: Financial scope inclusions

Financial product	Inclusion in scope
Asset finance	Automatic
Bridge Loan	Automatic
Buyer credit	Automatic
Capital markets instruments held for investment (i.e., AABS)[a]	Automatic
Equity shares in in-scope counterparty or asset[b]	Automatic
Finance leases[c]	Automatic
General corporate purpose loan	Automatic
JOLs & JOLCOs	Automatic
Liquidity Facility[d]	Automatic
Operating Leases	Automatic
Predelivery financing[e]	Automatic
Revolving credit facility	Automatic
Term loan facility	Automatic
Working capital facility	Automatic
Contingent M&A Financing	Voluntary
Swingline	Voluntary
Underwriting	Voluntary
Unfunded instruments (letters of credit, credit guarantees)	Voluntary
Facilitated capital markets activities	Excluded
Capital markets instruments held for market making	Excluded

Source: RMI analysis

[a] Capital markets instruments held for investment are financial products held on the balance sheet of the user for investment purposes for an intended tenor of 365 days or greater. This does not include instruments which are temporarily held on balance sheet for the purposes of facilitation or market making.
[b] Equity stakes do not include claimed collateral unless that collateral is intended to be held on-balance-sheet for investment purposes for a minimum tenor of 365 days or greater. Equity stakes should only include investments held as part of the aviation portfolio, i.e., an ownership stake in a leasing subsidiary. Incidental equity exposure incurred outside of the aviation portfolio need not be included. This distinction is determined at the sole discretion of the user.
[c] Finance leases should be treated as equivalent to aircraft-secured financing, with the counterparty treated as the aircraft owner. See balance sheet item 1 in the example portfolio, Appendix E.
[d] Note minimum tenor requirement of 365 days or greater for automatic inclusion.
[e] Predelivery financing should be treated as general purpose corporate exposure.

For a balance-sheet-item to be considered in-scope, it must be an in-scope product with an in-scope counterparty. An out-of-scope product (i.e., a credit guarantee) to an in-scope client (i.e., an airline) would be excluded from portfolio intensity calculations.

A user may opt to include any financial product labeled as “voluntary”, or financial products not otherwise listed, in its reporting scope. If a user does so, it should indicate in its annual reporting which products have been included for reporting purposes (see Section V: “Annual Disclosure”).

In the case that a user opts to include any financial products labeled as "voluntary," it must report on these products consistent with the remainder of this guidance, including its identification as aircraft-specific or general-purpose, tenor, and in determining its exposure amount of committed facilities. [xxi]

Portfolios are evaluated on a "snapshot" basis as of December 31st each year. Any financial products which may have been on a user's balance sheet earlier in the year, but which are no longer present on December 31st, should not be included in reporting.

Identifying Aircraft-Specific Financings

Under the Pegasus Guidelines methodology, balance sheet items are evaluated differently based on whether they are aircraft-specific or general-purpose financing. Aircraft-specific financing is evaluated based on the emissions intensity of the relevant aircraft (calculated on an operator-aircraft-model average basis), that is, the emissions intensity for that balance sheet item is based on the emissions and traffic generated only by that model of aircraft instead of the entire counterparty's fleet. General-purpose corporate financing is evaluated based on the emissions intensity of the full operated fleet (for airlines) or owned fleet (for lessors).

According to the Pegasus Guidelines methodology, all unsecured financing or financing secured by a majority of non-aircraft assets (engines, building facilities, etc.) are considered general-purpose corporate financing.

Aircraft-specific financing is evaluated based on the emissions and traffic of the aircraft linked to that facility, calculated on an operator-aircraft-model average basis according to the methodology. Aircraft-specific financing includes any facility which:

1. Is secured by aircraft collateral, and
2. Has a use-of-proceeds relationship to the aircraft collateral, i.e., secured aircraft purchase financing or refinancing.

Financial institutions should evaluate aircraft-secured financing to determine whether it qualifies as aircraft-specific. In cases where there is no use-of-proceeds relationship (i.e., flexible collateralized structures with significant substitution rights or mixed asset types), aircraft-secured facilities may be treated as general purpose corporate financing.

Additional Guidance

Tenor

In-scope financings with an original tenor of 365 days or more should be included in reporting. Exposure with a shorter tenor may be reported on a voluntary basis. If the user elects to report on exposure with a shorter tenor, this should be reported consistently throughout all portfolio calculations and disclosed in the institution's annual reporting (see Section V: "Annual Disclosure").

Weighting exposure by aviation-related revenue

In cases where clients have significant non-aviation revenues, a user should weigh exposure for general-purpose financing by the percentage of aviation-related revenues of the total revenues of the in-scope

[xxi] Excluding non-recourse warehouse facilities before they are first drawn, see "Warehouse Facilities".

client. This approach can simplify reporting for a user with exposures to a large, diversified group since they can weigh the total exposure by the percentage of aviation-related revenues of the whole group, rather than identify each client under the financing.

For example, if a user has $100 million of general-purpose exposure to a client where the client generates 30% of its revenue from the operation or leasing of commercial aircraft, the user will weigh the client's emissions intensity by $30 million when calculating alignment at the portfolio-level.

Determining exposure amount of committed facilities

Calculating climate-alignment requires taking an "exposure-weighted" average of the emissions intensity of each item on the balance-sheet.

- For committed facilities, the exposure amount of committed facilities is defined as the drawn and undrawn commitment as of December 31st of the reporting year.
- For uncommitted facilities, the exposure amount of committed facilities is defined as the outstanding utilized amount as of December 31st of the reporting year.
- For equity stakes or capital markets instruments held for investment, the exposure amount of committed facilities is defined as the book value of the equity stake or instrument as of December 31st of the reporting year.

Each individual balance sheet item should have a single exposure amount determined by the relevant method.

If a user is not able to report on the drawn and undrawn commitment value of committed facilities, it may instead calculate the exposure amount of committed facilities based on the drawn value on December 31st. In this event, the user should indicate in its "Parameters used for reporting" that it has calculated the exposure amount of committed facilities based on utilized quantities in lieu of credit limits (see Section V: "Annual Disclosure").

For aircraft-secured committed facilities, the full value of the drawn and undrawn commitment should be counted as the exposure to the relevant aircraft. A user should not treat the undrawn portion separately from the drawn portion; the full value should be treated either as aircraft-specific or general-purpose depending on whether it can be linked to specific aircraft.

Warehouse Facilities

In the case of non-recourse warehouse facilities, the exposure amount of committed facilities should be treated as zero before the facility is first drawn. Once any portion of the facility is drawn, it should be treated as an aircraft-secured committed facility and the exposure amount should be defined as the drawn and undrawn commitment. Recourse warehouse facilities should be treated as general-purpose corporate committed facilities before the facility is first drawn, and as aircraft-secured committed facilities once any portion of the facility is drawn.

Letters of Credit

In the event that a user opts to voluntarily report on letters of credit, and in the case of letters of credit issued under an uncommitted facility, the issued value of the letter of credit should be considered as "utilized" against the uncommitted facility. Banks should not treat letters of credit as "utilized" only when actually drawn upon, but should instead treat them as utilized from the time of issuance. Note that reporting on letters of credit is voluntary. If included in calculations, a user should disclose this in the "Parameters used for reporting" (see Section V: "Annual Disclosure").

Special Purpose Vehicle (SPV) Financing

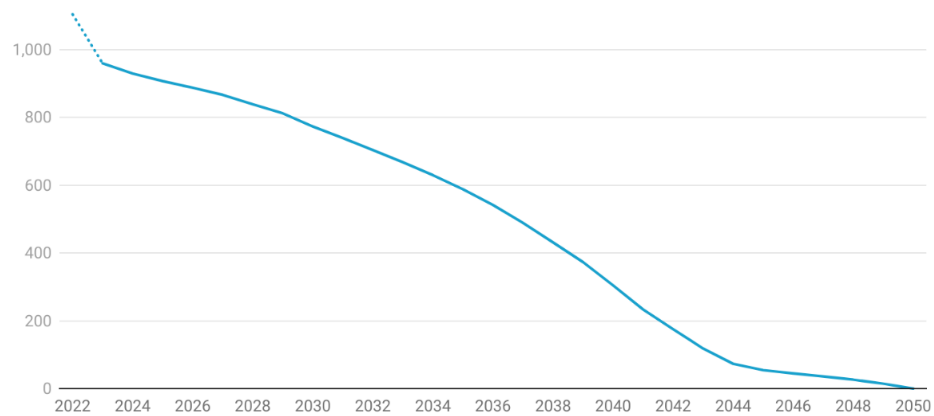
The use of SPVs in structuring financing should not affect the scope or calculations described in this methodology. SPV aircraft financing should be included as aircraft-specific financing and included in airline and/or lessor fleet calculations.

Appendix C: The Mission Possible Partnership "Prudent" Roadmap

The Mission Possible Partnership "Prudent" Roadmap

Released by the Mission Possible Partnership (MPP) in its 2022 Aviation Transition Strategy report, MPP based the "Prudent" roadmap on a bottom-up technical model of the aviation sector (Exhibit C1). MPP PRU details a 1.5°C-aligned roadmap for aviation to achieve net zero emissions by 2050, based on a cumulative tank-to-wake emissions budget of approximately 19.4 GT for aviation from 2020 to 2050.

Exhibit C1: MPP PRU emissions intensity (gCO_2e/RTK) roadmap



MPP PRU Scenario, with IATA historical traffic values 2020-2023

Source: MPP 2022, IATA 2023, RMI Analysis

The MPP PRU roadmap is based on detailed assumptions including the introduction of new aircraft, the availability and production pathways of SAF, efficiency improvements, and future traffic demand. The full details of this model can be found in the MPP Aviation Transition Strategy report and the report's accompanying technical appendix.[xxii]

The MPP scenario was provided on the same scope as the Pegasus Guidelines methodology, including WTW CO_2e emissions and commercial passenger, belly freight, and dedicated cargo traffic forecasts.

[xxii] Mission Possible Partnership. (2022). *Technical Appendix of Making Net-Zero Aviation Possible: An industry-backed, 1.5°C-aligned transition strategy*. https://missionpossiblepartnership.org/wp-content/uploads/2023/01/MPP-Aviation-Transition-Strategy_Technical-Appendix82.pdf.

Appendix D: Sustainable Aviation Fuels

Lifecycle Emissions Coefficients and Emissions Reduction Factors

The methodology accounts for sustainable aviation fuels through the use of lifecycle emissions coefficients to allow comparisons between specific types of SAF and a fossil fuel baseline. These coefficients account for the emissions produced by a particular fuel type across its full lifecycle, from the production or extraction of the original feedstock through combustion by an aircraft. In the case of SAFs, the values associated with feedstock creation are negative, whether through the growth of biomass or the capture of atmospheric carbon. These negative upstream emissions partially offset the combustion emissions produced by consuming SAFs.

SAFs are often characterized by their emissions reduction factor (ERF), which is a function of the ratio of the SAF lifecycle emissions to the fossil jet fuel baseline. This calculation must be performed with lifecycle values, as SAF TTW emissions are effectively equivalent to fossil jet fuel TTW emissions.

$$ERF = 1 - \frac{SAF\ Lifecycle\ Emissions}{Fossil\ Jet\ Lifecycle\ Emissions}$$

The ICAO baseline value for fossil jet fuel is 89 gCO_2e/MJ, or converted to a per-gram basis, is approximately 3.84 gCO_2e/g fuel. Note that the grams-per-gram value **is not** directly mandated by ICAO CORSIA regulations but relies on the specification of a lower heating value (LHV) for fossil jet fuel in order to convert from a per-megajoule emissions figure to a per-gram figure.

While 89 gCO2e/MJ is recognized as the ICAO regulatory standard, other frameworks or accounting approaches may differ from the 3.84 gCO2e/g fuel value presented here due to a lack of standardization on LHVs for jet fuel. The Pegasus Guidelines methodology currently uses an LHV of 43.2 MJ/kg which is consistent with MPP's methodology and allows for a direct comparison to the MPP PRU pathway. In the event of further industry standardization and/or changes to the MPP model, this value may be updated in the future.

In line with existing SBTi guidance, the Pegasus Guidelines includes the impact of Indirect Land Use Change (ILUC) in lifecycle emissions coefficients but caps the maximum ERF at 100% (also expressed as a minimum SAF lifecycle value of "0").

In certain instances, fuel producers may directly certify ERFs, rather than providing a lifecycle emissions value for comparison to the ICAO baseline. In some cases, these ERFs may be calculated with a lifecycle baseline other than the ICAO default. Where clients or third-party data providers have access to certified ERFs in lieu of lifecycle emissions values, they may supply these ERFs directly. Additional information is provided in both the third-party data standard and client reporting guidance.

Comparing Pegasus Guidelines / SBTi SAF Accounting to ICAO CORSIA Accounting

Both ICAO CORSIA and the SBTi methodology (on which the Pegasus Guidelines approach is based) calculate the ERF of a given SAF on a lifecycle-comparison basis, using WTW emissions values. However, these approaches differ in how the ERF is applied to total emissions. In the ICAO CORSIA guidance, emissions totals are calculated on a TTW basis, which requires effectively pro-rating the SAF ERF to the TTW portion of fuel emissions. In contrast, the SBTi and Pegasus Guidelines approach applies the ERF to the full lifecycle emissions of the fuel.

In equation form, this difference is reflected in the use of fossil-fuel baseline emissions coefficients, with ICAO CORSIA multiplying a SAF ERF by the TTW jet fuel baseline, while SBTi and Pegasus Guidelines uses the WTW jet fuel baseline:

$$ICAO\ Reduction = \left(1 - \frac{SAF\ Lifecycle\ Emissions\ \frac{gCO2e}{MJ}}{89\ \frac{gCO2e}{MJ}}\right) * \mathbf{3.16}\ \frac{\mathbf{gCO2}}{\mathbf{g\ Fuel}} *\ Quantity\ SAF(tons)$$

$$Pegasus\ Principles = \left(1 - \frac{SAF\ Lifecycle\ Emissions\ \frac{gCO2e}{MJ}}{89\ \frac{gCO2e}{MJ}}\right) * \mathbf{3.84}\ \frac{\mathbf{gCO2e}}{\mathbf{g\ Fuel}} *\ Quantity\ SAF(tons)$$

This difference in implementation does not impose any additional data requirements on reporting airlines but does capture the full lifecycle impacts of SAF and provides additional incentives for SAF purchases compared to the pro-rated ICAO figure.

Book-and-claim

Even at the airline level, SAF purchases and physical SAF consumption may not be directly linked. Airlines face different SAF supply and fueling infrastructure constraints based on operational factors. As a result, SAF availability and airline demand for its environmental benefits are not always well-matched. To overcome this logistical constraint, airlines may participate in book-and-claim systems, in which one airline pays the price premium for SAF to claim its environmental benefits, but a different airline takes physical delivery of the SAF.[xxiii]

The Pegasus Guidelines methodology tracks SAF emissions reductions based solely on airline purchases, including via book-and-claim systems. The intention of the Pegasus Guidelines methodology is to incorporate purchases made via industry-recognized book-and-claim systems, so long as only one airline – the airline paying the price premium for the SAF – claims the environmental benefits of the SAF. Price sharing systems, in which travelers cover some or all of the price premium associated with SAF, are also permitted under the Pegasus Guidelines methodology, so long as the emissions reductions associated with a unit of SAF are only claimed by a single airline.

Additional guidance on SAF accounting can be found in the supplemental client reporting guidance and third-party data standard.

[xxiii] Roundtable on Sustainable Biofuels. (2021). *RSB Book & Claim Manual Version 2.0* https://rsb.org/wp-content/uploads/2021/12/21-12-02-RSB-Book-and-Claim-Manual-2.0.pdf.

Appendix E: Example Portfolio Calculations

This appendix contains a full example portfolio calculation, containing each of the four categories of financing included in the methodology: 1) aircraft-secured financing for a single aircraft, 2) aircraft-secured financing for multiple aircraft, 3) general-purpose financing to an airline, and 4) general-purpose financing to a lessor (Exhibit E1). The example reporting is for hypothetical 2024 data.

Exhibit E1: Example aviation finance portfolio, with loan details

Balance Sheet Item	Financing Type	Counterparty	Aircraft Collateral	Exposure ($ millions)
1	Aircraft-secured loan	Lessor A, Leased to Airline A	Model A Passenger	80 (committed limit)
2	Aircraft-secured loan	Airline A	Model B Passenger Model C Passenger Model C Passenger Model D Cargo	175 (committed limit)
3	Revolving Credit Facility (RCF)	Airline B	NA	250 (credit limit)
4	General corporate purpose loan	Lessor B	NA	50 (utilized)

Source: RMI analysis

Step 1: Determine in-scope clients and financings

All four financings are made to in-scope clients (airlines and lessors) and are financial products which are included in scope (loans and an RCF).

For the purposes of this example, balance sheet items 1, 2, and 3 are assumed to be committed and are evaluated based on committed limits of $80m, $175m, and $250m respectively. Balance sheet item 4 is assumed to be an uncommitted facility and is evaluated based on a drawn value of $50m respectively.

Step 2: Identify aircraft-specific financings and general-purpose financings

Balance sheet items 1 and 2 are aircraft-secured financings and will be evaluated on an operator-aircraft-model-average basis. Balance sheet items 3 and 4 are general-purpose financings and will be evaluated on an airline/lessor average basis.

Steps 3-6: For each balance sheet item, calculate the associated emissions intensity

These steps must be repeated for each in-scope financing.

Balance sheet item 1: Aircraft-secured finance with single aircraft

Step 3: Measure baseline emissions

Baseline emissions are always calculated based on fuel consumption and a standard emissions coefficient of 3.84 gCO_2e/g fossil jet fuel.

$$Emissions\ (tons\ CO2e) = \ Fuel\ (tons) * 3.84 \frac{gCO2e}{g\ Fuel}$$

In the case of a secured financing for a single aircraft, the relevant fuel value is the average fuel consumption for aircraft of that model, at the operating airline, in the reporting year. As this financing is to a lessor, the relevant airline is the **leasing** airline as of December 31st of the reporting year. In this case, the aircraft model is Model A Passenger. A reporting airline or third-party data provider calculates:

$$Emissions = \frac{\sum_a^n Fuel_a * 3.84\ \frac{gCO2e}{g\ Fuel}}{n}$$

Where subscript a denotes each individual Model A Passenger operated by the airline, and n is the total number of Model A Passenger aircraft in the fleet.

In the example portfolio, Airline A operated three Model A Passenger aircraft in 2024, whose fuel consumption is shown in the Exhibit E2 below:

Exhibit E2: Airline A Model A subfleet fuel consumption

Operating Airline	Aircraft Model	Fuel Consumption in 2024 (tons)
Airline A	Model A Passenger	220
Airline A	Model A Passenger	320
Airline A	Model A Passenger	194.4

Source: RMI analysis

Using these example values, the emissions associated with balance sheet item 1 are calculated as:

$$Emissions = \frac{(220_{tons} + 320_{tons} + \ 194.4_{tons}) * 3.84 \frac{gCO2e}{g\ Fuel}}{3} = 940\ tons\ CO2e$$

The resulting value of 940 tons CO_2e is the operator-aircraft-model-average for all Model A aircraft operated by Airline A. This value will be used in subsequent steps for calculating the emission intensity associated with balance sheet item 1.

Step 4: Account for SAF purchases

After calculating baseline emissions based on total fuel consumption, the client reporting template or third-party data provider adjusts these emissions for the use of SAF.

SAF purchases are accounted for at the airline level on a by-fuel-type basis via the following equation:

$$Reduction = (1 - \frac{SAF\ Lifecycle\ Emissions \frac{gCO2e}{MJ}}{89 \frac{gCO2e}{MJ}}) * 3.84 \frac{gCO2e}{g\ Fuel} * \ Quantity\ SAF(tons)$$

Where 89 gCO_2e/MJ is the baseline lifecycle emissions value for fossil jet fuels. By repeating this calculation for each type of SAF purchased by the airline, and summing up the reductions from each type, a reporting client or third-party data provider can determine the total emissions reductions due to SAF at a given airline. These two steps can be expressed as a single equation:

$$Total\ Emissions\ Reduction = \ 3.84 \frac{gCO2e}{g\ Fuel} * \sum Quantity_{SAF}(1 - \frac{SAF\ Lifecycle\ Emissions \frac{gCO2e}{MJ}}{89 \frac{gCO2e}{MJ}})$$

In the case of secured financing of an individual aircraft, this value cannot be directly incorporated into the emissions value, as the “total emissions reduction” value is the total across the entire operated airline fleet, not just the aircraft-model-subfleet. To adjust for SAF at the level of the aircraft model, a user, client, or third-party data provider must first calculate the **percentage** emissions reduction across the full airline fleet due to the purchase of SAF, referred to as the SAF Emissions Reduction Percentage (SERP). This value is then applied to any operator-aircraft-model-average values for aircraft operated by that airline.

Airline-level emissions reduction percentage due to the purchase of SAF is calculated via the following equation:

$$Airline\ SAF\ Emissions\ Reduction\ Percentage\ (SERP) = \frac{Emissions\ Reduction}{Baseline\ Emissions}$$

To make the adjustment for SAF, the SERP is then multiplied by the operator-aircraft-model-average emissions calculated in Step 3.

For the example portfolio, the operating airline associated with balance sheet item 1 is Airline A. In the reporting year (2024) Airline A purchases two types of SAF: Alcohol to Jet (ATJ) from Agricultural Residue feedstock, and Hydroprocessed Esters and Fatty Acids (HEFA) from Used Cooking Oil feedstock (Exhibit E3).

Exhibit E3: Airline A example SAF purchases

Fuel	Quantity Consumed (tons)	Lifecycle Emissions Factor (gCO_2e/MJ)
Jet A1	100,000	89
ATJ - Agricultural Residue (integrated)	10,000	24.6
HEFA – Used Cooking Oil	20,000	13.9

Source: RMI Analysis, ICAO 2022

The emissions reductions due to the purchase of ATJ are:

$$ATJ\ Emissions\ Reduction = \left(1 - \frac{24.6}{89}\right) * 3.84 \frac{gCO2e}{g\ fuel} * \ 10{,}000 = \ 27{,}786\ tons\ CO2e$$

The emissions reductions due to the purchase of HEFA are:

$$HEFA\ Emissions\ Reduction = \left(1 - \frac{13.9}{89}\right) * 3.84 \frac{gCO2e}{g\ fuel} * \ 20{,}000 = 64{,}805\ tons\ CO2e$$

Summing these values together produces “total emissions reductions” for Airline A:

$$Total\ Emissions\ Reduction = \ 27{,}786 + 64{,}805 = 92{,}591\ tons\ CO2e$$

This value is now used to calculate the SERP across Airline A due to the purchase of SAF:

$$SERP = \frac{Emissions\ Reduction}{Baseline\ Emissions} = \frac{92{,}591}{(100{,}000 + 10{,}000 + 20{,}000) * 3.84} = 18.54\%$$

Note that "Baseline Emissions" are calculated by multiplying the total fuel purchases of Airline A (including SAF) by the 3.84 gCO_2e/g fossil fuel baseline value.

For the example portfolio, this 18.54% emissions reduction percentage for Airline A can now be applied to the value calculated in Step 3 to derive the SAF-adjusted emissions associated with balance-sheet item 1:

$$Adj. Emissions = Baseline\ Em.* (1 - SERP) = 940 * (1 - .1854) = 765.7\ tons\ CO2e$$

The resulting value of 765.7 tons CO_2e incorporates the effects of Airline A's SAF purchases and will be used in subsequent steps to calculate the emissions intensity associated with balance sheet item 1.

Step 5: Measure traffic

For secured financing of a single aircraft, the traffic metric is calculated via the operator-aircraft-model average. Note that because aircraft model definitions include whether an aircraft is a passenger or dedicated freighter aircraft, financings of this type will produce either only passenger and belly cargo traffic, or only dedicated cargo traffic.

For balance sheet item 1, the relevant aircraft model is a passenger variant. Assuming passenger traffic is measured in RPKs, a reporting airline or third-party data provider would calculate the operator-aircraft-model average as follows, using the default passenger weight conversion factor of 100kgs:

$$Traffic = \frac{\sum_a^n RPKs * \frac{100kg}{1000} + Belly\ Cargo\ RTKs}{n}$$

Where subscript a denotes each individual Model A Passenger operated by the airline, and n is the total number of Model A Passenger aircraft in the subfleet.

In the example portfolio, balance-sheet-item 1 is secured by a single Model A Passenger owned by Lessor A, who has leased the aircraft to Airline A. The example traffic values for each aircraft associated with balance sheet item 1 are given in the following table (Exhibit E4):

Exhibit E4: Airline A Model A subfleet traffic

Operating Airline	Aircraft Model	RPKs in 2024	Belly Cargo RTKs in 2024
Airline A	Model A Passenger	9,400,000	0
Airline A	Model A Passenger	7,500,000	0
Airline A	Model A Passenger	8,000,000	0

Source: RMI analysis

Using these example values, the traffic value associated with balance sheet item 1 is calculated as:

$$Traffic = \frac{(9{,}400{,}000_{RPKs} + 7{,}500{,}000_{RPKs} + 8{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} = 830{,}000\ RTKs$$

This average value of 830,000 RTKs will be used in subsequent steps for calculating the emissions intensity associated with balance sheet item 1.

Step 6: Calculate emissions intensity

Once the relevant emissions and traffic values for a financing are known, the emission intensity associated with that balance sheet item can be calculated. For aircraft-secured financing for a single aircraft, this is the simple ratio of emissions to traffic:

$$Intensity = \frac{Emissions}{Traffic}$$

Substituting in the terms from the previous steps, the expanded equation for the emission intensity associated with a single-aircraft-secured financing to a passenger model is:

$$Intensity = \frac{\sum_a^n Fuel_a * 3.84 \frac{gCO2e}{g\,Fuel} * (1 - SERP)}{\sum_a^n RPKs_a * \frac{100kg}{1000} + Belly\ Cargo\ RTKs_a}$$

The resulting value is in grams CO_2e per RTK, accounts for the use of SAF, and includes both passenger RTKs and belly cargo.

For the example portfolio, Steps 3-5 produce all the values needed to calculate the emissions intensity associated with balance sheet item 1:

$$Intensity = \frac{765.7\ tons\ CO2e * 1000 \frac{kg}{ton} * 1000 \frac{g}{kg}}{830{,}000\ RTKs} = 922.5 \frac{gCO2e}{RTK}$$

Note that emissions are converted in this equation from tons to grams to express intensity in grams CO_2e per RTK. This value will be used in subsequent steps to calculate a portfolio-level average emissions intensity.

Balance sheet item 2: Aircraft-secured finance with multiple aircraft

Note that this numerical example assumes that individual aircraft-level exposure is not known for this facility. In the event that individual aircraft-level exposure is known, financial institutions should treat each aircraft as though it were its own facility and apply the same steps for each aircraft as are shown in example balance sheet item 1.

Step 3: Measure baseline emissions

Baseline emissions are always calculated using fuel consumption and a standard emission coefficient of 3.84 gCO_2e/g fossil jet fuel.

$$Emissions\ (tons\ CO2e) = Fuel\ (tons) * 3.84 \frac{gCO2e}{g\,Fuel}$$

In the case of a secured financing for multiple aircraft, the relevant emissions value is the sum of the operator-aircraft-model average emissions for each aircraft in the facility. In this case, the loan is secured by a two Model C Passenger aircraft, a Model B Passenger aircraft, and a Model D Cargo aircraft. Emissions are calculated:

$$Emissions = \frac{\sum_{a1}^{n1} Fuel_{a1} * 3.84 \frac{gCO2e}{g\,Fuel}}{n1} + \frac{\sum_{a2}^{n2} Fuel_{a2} * 3.84 \frac{gCO2e}{g\,Fuel}}{n2} + \cdots$$

Where subscript $a1$ denotes each individual aircraft of the first model operated by the airline, and $n1$ is the total number of aircraft of the first model in the fleet, subscript $a2$ denotes each individual aircraft of the second model operated by the airline, and $n2$ is the total number of aircraft of the second model in the fleet, and so on.

In 2024, Airline A operates three Model C Passenger, two Model B Passenger, and two Model D Cargo aircraft. Example values for their fuel consumption are given in Exhibit E5:

Exhibit E5: Example Airline A subfleets fuel consumption

Operating Airline	Aircraft Model	Fuel Consumption in 2024 (tons)
Airline A	Model C Passenger	700
Airline A	Model C Passenger	650
Airline A	Model C Passenger	675
Airline A	Model B Passenger	850
Airline A	Model B Passenger	900
Airline A	Model D Cargo	1050
Airline A	Model D Cargo	600

Source: RMI analysis

Using these example values, the baseline emissions associated with balance sheet item 2 are calculated as:

$$Emissions = \frac{(700 + 650 + 675) * 3.84}{3} + \frac{(700 + 650 + 675) * 3.84}{3} + \frac{(850 + 900) * 3.84}{2} + \frac{(1050 + 600) * 3.84}{2} = 11{,}712 \; tons \; CO2e$$

This resulting value of 11,712 tons CO_2e will next be adjusted for SAF before being used to calculate emissions intensity. Note that the emissions for "Model C Passenger" aircraft appear twice in the equation above, due to the inclusion of two Model C Passenger aircraft in balance sheet item 2.

Step 4: Account for SAF purchases

As with secured financing for a single aircraft, the first step in adjusting for SAF for secured financing to multiple aircraft is to determine the airline-level emissions reductions due to SAF purchases by the operating airline.

$$Total \; Emissions \; Reduction = 3.84 * \sum Quantity_{SAF}(1 - \frac{SAF \; Lifecycle \; Emissions \frac{gCO2e}{MJ}}{89 \frac{gCO2e}{MJ}})$$

This value is then used to calculate the SERP across the full airline operational fleet, assuming SAF is uniformly distributed.

$$Airline \; SAF \; Emissions \; Reduction \; Percentage \; (SERP) = \frac{Emissions \; Reduction}{Baseline \; Emissions}$$

To adjust for SAF, this value is used with each of the operator-aircraft-model-average values calculated in Step 3.[xxiv]

In the sample portfolio, all the aircraft linked to balance sheet item 2 are operated by Airline A. The example calculation for Airline A's SERP is already shown for balance sheet item 1 and is 18.54%.

Applied to the baseline emissions from Step 3, this produces the following equation:

$$\frac{(700+650+675)*3.84\,(1-.1854)}{3}+\frac{(700+650+675)*3.84\,(1-.1854)}{3}+\frac{(850+900)*3.84\,(1-.1854)}{2}+\frac{(1050+600)*3.84\,(1-.1854)}{2}=9{,}540.6\ tons\ CO2e$$

The resulting value of 9,540.6 tons CO_2e incorporates the effects of Airline A's SAF purchases and will be used in subsequent steps to calculate the emissions intensity associated with balance sheet item 2.

Step 5: Measure traffic

For aircraft-secured financing to multiple aircraft, the relevant traffic value is the sum of the operator-aircraft-model average for each aircraft in the facility.

Traffic is calculated:

$$Traffic=\frac{\sum_{a1}^{n1} RTKs}{n1}+\frac{\sum_{a2}^{n2} RTKs}{n2}+\cdots$$

Where subscript $a1$ denotes each individual aircraft of the first model operated by the airline, and $n1$ is the total number of aircraft of the first model in the fleet, subscript $a2$ denotes each individual aircraft of the second model operated by the airline, and $n2$ is the total number of aircraft of the second model in the fleet, and so on.

For passenger aircraft models, the RTK values (assuming RPKs are reported) will be:

$$Traffic=\sum_{a} RPKs*\frac{100kg}{1000}+Belly\ Cargo\ RTKs$$

For cargo aircraft models, the RTK values are measured directly.

For the example portfolio, balance sheet item 2 is secured by three Model C Passenger, two Model B Passenger, and two Model D Cargo aircraft, all operated by Airline A. Example traffic values for each aircraft associated with balance sheet item 2 are given in Exhibit E6:

[xxiv] In the case that all aircraft in a multi-aircraft secured facility are operated by the same airline, only a single airline's SERP will be calculated and applied. In the case that there are aircraft operated by multiple airlines, see the example for general-purpose financing to a lessor below.

Exhibit E6: Example Airline A fleet traffic

Operating Airline	Aircraft Model	RPKs in 2024	Belly Cargo RTKs in 2024	Cargo RTKs in 2024
Airline A	Model C Passenger	25,400,000	0	0
Airline A	Model C Passenger	27,500,000	0	0
Airline A	Model C Passenger	21,000,000	0	0
Airline A	Model B Passenger	25,400,000	100,000	0
Airline A	Model B Passenger	18,500,000	220,000	0
Airline A	Model D Cargo	0	0	4,000,000
Airline A	Model D Cargo	0	0	7,500,000

Source: RMI analysis

Using these example values, the traffic value associated with balance sheet item 2 is calculated as:

$$Traffic = \frac{(25{,}400{,}000_{RPKs} + 27{,}500{,}000_{RPKs} + 21{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} + \frac{(25{,}400{,}000_{RPKs} + 27{,}500{,}000_{RPKs} + 21{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} + \frac{(25{,}400{,}000_{RPKs} + 18{,}500{,}000_{RPKs}) * \frac{100kg}{1000} + (100{,}000_{RTKs} + 220{,}000_{RTKs})}{2} + \frac{4{,}000{,}000_{RTKs} + 7{,}500{,}000_{RTKs}}{2} = 13{,}031{,}667 RTKs$$

The resulting value of 13,031,667 RTKs incorporates the full mix of passenger, belly cargo, and dedicated cargo payloads transported by the aircraft linked to balance sheet item 2, calculated on an operator-aircraft-model average basis. This value is used in subsequent steps to calculate the emissions intensity associated with balance sheet item 2.

Step 6: Calculate emissions intensity

Once the relevant emissions and traffic values for a financing are known, a user can calculate the emissions intensity associated with that balance sheet item. For aircraft-secured financing to multiple aircraft, a user must sum the emissions and traffic values for each aircraft in the facility before taking the ratio:

$$Intensity = \frac{\sum_a Emissions}{\sum_a Traffic}$$

Substituting in the terms from the previous steps, the expanded equation for the emission intensity associated with a multi-aircraft-secured financing is:

$$Intensity = \frac{\frac{\sum_{a1}^{n} Fuel_{a1} * 3.84 \frac{gCO2e}{g\,Fuel}}{n1} * (1 - SERP_{a1}) + \frac{\sum_{a2}^{n} Fuel_{a1} * 3.84 \frac{gCO2e}{g\,Fuel}}{n2} * (1 - SERP_{a2}) + \cdots}{\frac{\sum_{a1}^{n} RTKs}{n1} + \frac{\sum_{a2}^{n} RTKs}{n2} + \cdots}$$

The resulting value is in grams CO_2e per RTK, accounts for the use of SAF, and includes both passenger RTKs and belly cargo.

For the example portfolio, Steps 3-5 produce all the values needed to calculate the emissions intensity associated with balance sheet item 2:

$$Intensity = \frac{9540.6\ \ Tons\ CO2e * 1000\frac{kg}{Ton} * 1000\frac{g}{kg}}{13{,}031{,}667\ RTKs} = 732.1\frac{gCO2e}{RTK}$$

Note that emissions are converted from tons to grams to express intensity in grams CO_2e per RTK. This value will be used in subsequent steps in calculating a portfolio-level average emissions intensity.

Balance sheet item 3: General-purpose exposure to an airline

Step 3: Measure baseline emissions

Baseline emissions are always calculated using fuel consumption and a standard 3.84g CO_2e/g fossil jet fuel emissions coefficient.

$$Emissions\ (tons\ CO2e) = \ Fuel\ (tons) * 3.84\frac{gCO2e}{g\ Fuel}$$

In the case of general-purpose financing to an airline, the relevant emissions value is the total emissions across the entire airline fleet for all aircraft models. A reporting airline or third-party data provider calculates:

$$Emissions = \sum_{a}^{n} Fuel_a * 3.84\ \frac{gCO2e}{g\ Fuel}$$

Where subscript a denotes each individual aircraft operated by the airline, and n is the total number of aircraft in the entire fleet.

Since balance sheet item 3 is a general-purpose loan to Airline B, Airline B directly reports its full-fleet level fuel consumption, which in this example is 30,000 tons of fuel for the reporting year:

$$Emissions = \ 30{,}000_{tons\ fuel} * \ 3.84\ \frac{gCO2e}{g\ Fuel} = 115{,}200\ tons\ CO2e$$

The resulting value must be adjusted for SAF before it can be used to calculate emissions intensity.

Step 4: Account for SAF purchases

For general-purpose exposure to an airline, SAF emissions reductions can be directly subtracted from airline-level emissions totals. As with all the other cases, the first step is to calculate the total emissions reductions due to SAF purchases at the airline level:

$$Total\ Emissions\ Reduction = \ 3.84 * \sum Quantity_{SAF}\left(1 - \frac{SAF\ Lifecycle\ Emissions\frac{gCO2e}{MJ}}{89\frac{gCO2e}{MJ}}\right)$$

Unlike the other three example cases, for general-purpose exposure to an airline it is not necessary to calculate a SERP. Instead, the “total emissions reduction” can be directly subtracted from the baseline emissions value calculated for the airline in Step 3.

For the example portfolio, the operating airline associated with balance sheet item 3 is Airline B. In the reporting year, Airline B purchases two types of SAF: Fischer-Tropsch (FT) using Forestry Residue feedstock, and Hydroprocessed Esters and Fatty Acids (HEFA) using Corn Oil feedstock (Exhibit E7).

Exhibit E7: Example Airline B SAF purchases

Fuel	Quantity Consumed (tons)	Lifecycle Emissions Factor (gCO_2e/MJ)
Jet A1	27,000	89
FT Forestry Residue (Global)	2,000	8.3
HEFA – Corn Oil	1,000	17.5

Source: RMI Analysis, ICAO 2022

The emissions reductions due to the purchase of FT are:

$$FT\ Emissions\ Reduction = \left(1 - \frac{8.3}{89}\right) * 3.84 * \ 2{,}000 = \ 6{,}963.8\ tons\ CO2e$$

The emissions reductions due to the purchase of HEFA are:

$$HEFA\ Emissions\ Reduction = \left(1 - \frac{17.5}{89}\right) * 3.84 * \ 1{,}000 = 3{,}084.9\ tons\ CO2e$$

Summing these values together produces "total emissions reductions" for Airline B:

$$Total\ Emissions\ Reduction = \ 6{,}963.8 + 3{,}084.9 = 10{,}048.7\ tons\ CO2e$$

This value is then directly subtracted from the total baseline emissions calculated in Step 3:

$$Adjusted\ Emissions = 115{,}200 - 10{,}048.7 = \ 105{,}151.3\ tons\ CO2e$$

This adjusted value incorporates the effects of SAF purchased by Airline B and will be used in subsequent steps to calculate the emissions intensity associated with balance sheet item 3.

Step 5: Measure traffic

For general-purpose finance to an airline, the relevant values are the full-fleet total across all aircraft models operated by the airline. In practice, these values are likely to be recorded directly at the airline level. If calculated "from the ground up" by a reporting airline or third-party data provider, the traffic value would be calculated as:

$$Traffic = \sum_{ap} (Passenger\ Aircraft\ RPKs * \frac{100kg}{1000} + Belly\ Cargo\ RTKs) + \sum_{af} Dedicated\ Cargo\ RTKs$$

Where subscript ap denotes each individual passenger aircraft operated by the airline, and af denotes each individual dedicated freighter aircraft operated by the airline.

For the example portfolio, the relevant traffic value for balance sheet item 3 is the airline-level total traffic generated by Airline B. This value is directly reported in terms of passenger RPKs, belly cargo

RTKs, and dedicated traffic RTKs, which for this example are 1,122,000,000 RPKs, 1,200,000 RTKs of belly cargo, and 800,000 RTKs of dedicated cargo, respectively.

$$Traffic = (1{,}122{,}000{,}000_{RPKs} * \frac{100kg}{1000}) + 1{,}200{,}000_{RTKs} + 800{,}000_{RTKs} = 114{,}200{,}000\ RTKs$$

The resulting value of $114{,}200{,}000\ RTKs$ incorporates the full mix of passenger, belly cargo, and dedicated cargo payloads transported by Airline B. This value is used in subsequent steps to calculate the emissions intensity associated with balance sheet item 3.

Step 6: Calculate emissions intensity

Once the relevant emissions and traffic values for a financing are known, the emissions intensity associated with that balance sheet item can be calculated. For general-purpose financing to an airline, this is the simple ratio of emissions to traffic at the airline (full-fleet) level:

$$Intensity = \frac{Emissions}{Traffic}$$

Substituting in the terms from the previous steps, the expanded equation for the emission intensity associated with a general-purpose financing to an airline is:

$$Intensity = \frac{g\ Fuel_{airline} * 3.84\ \frac{gCO2e}{g\ Fuel} - Airline\ Emissions\ Reduction}{RTKs_{airline}}$$

The resulting value is in grams CO_2e per RTK, accounts for the use of SAF, and includes both passenger RTKs and belly cargo.

For the example portfolio, Steps 3-5 produce all the values needed to calculate the emissions intensity associated with balance sheet item 3:

$$Intensity = \frac{105{,}151.3\ tons\ CO2e * 1000 * 1000}{114{,}200{,}000\ RTKs} = 920.7\ \frac{gCO2e}{RTK}$$

Note that emissions need to be converted from tons to grams to express intensity in grams of CO_2e per RTK. This value will be used in subsequent steps to calculate the portfolio-level average emissions intensity.

Balance sheet item 4: General-purpose exposure to a lessor

Step 3: Measure baseline emissions

Baseline emissions are always calculated using fuel consumption and a standard 3.84 gCO_2e/g fossil jet fuel emissions coefficient.

$$Emissions\ (tons\ CO2e) = Fuel\ (tons) * 3.84 \frac{gCO2e}{g\ Fuel}$$

Since lessors will lease aircraft to several different airlines, general-purpose exposure to lessors is treated in the same way as secured financing for multiple aircraft, with the important caveat that there will be a much wider range of operating airlines involved for a typical lessor than a typical multi-aircraft secured financing. The relevant emissions value is the sum of the operator-aircraft-model-average emissions for each aircraft owned by the lessor. For each individual aircraft, the operating airline is the leasing airline on December 31st of the reporting year.

In this case, emissions value for the loan is the sum of the operator-aircraft-model-average for each aircraft owned by the lessor:

$$Emissions = \frac{\sum_{a1}^{n1} Fuel_{a1} * 3.84 \frac{gCO2e}{g\,Fuel}}{n1} + \frac{\sum_{a2}^{n2} Fuel_{a2} * 3.84 \frac{gCO2e}{g\,Fuel}}{n2} + \cdots$$

Where subscript $a1$ denotes each individual aircraft of the first model operated **by the leasing airline for that specific aircraft**, and $n1$ is the total number of aircraft of the first model in the leasing airline's fleet, subscript $a2$ denotes each individual aircraft of the second model operated by the leasing airline for that specific aircraft, and $n2$ is the total number of aircraft of the second model in the fleet, and so on.

Each aircraft owned by the lessor will appear in the equation above. Where a lessor leases multiple aircraft of the same model to the same airline, the same value will appear once for each of those aircraft. When a lessor leases multiple aircraft of the same model to different airlines, a different value will appear once for each of those aircraft, as determined by the operator-aircraft-model average for the leasing airline.

For the example portfolio, lessor B owns three aircraft: two Model A Passenger aircraft both leased to Aircraft A, and Model E Cargo leased to Airline B. Example fuel consumption values for each aircraft are given in Exhibit E8:

Exhibit E8: Example fuel consumption for multiple subfleets

Operating Airline	Aircraft Model	Fuel Consumption in 2024 (tons)
Airline A	Model A Passenger	220
Airline A	Model A Passenger	320
Airline A	Model A Passenger	194.4
Airline B	Model E Cargo	700
Airline B	Model E Cargo	800

Source: RMI analysis

The resulting emissions value is calculated as:

$$Emissions = \frac{(220 + 320 + 194.4) * 3.84}{3} + \frac{(220 + 320 + 194.4) * 3.84}{3} + \frac{(700 + 800) * 3.84}{2}$$
$$= 4{,}760\ tons\ CO2e$$

Step 4: Account for SAF purchases

As with each other case, the first step in adjusting for SAF for general-purpose financing to a lessor is to determine the airline-level emissions reductions due to SAF purchases by the operating airline. Unlike in the other cases, this step will need to be performed for each client airline of the lessor.[xxv]

$$Total\ Emissions\ Reduction = 3.84 * \sum Quantity_{SAF}(1 - \frac{SAF\ Lifecycle\ Emissions \frac{gCO2e}{MJ}}{89 \frac{gCO2e}{MJ}})$$

This value is then used to calculate the percentage emissions reduction across the full airline operational fleet due to SAF purchases, assuming SAF is uniformly distributed.

$$Airline\ SAF\ Emissions\ Reduction\ Percentage\ (SERP) = \frac{Emissions\ Reduction}{Baseline\ Emissions}$$

Once the SERP is known for each lessee airline, these values can be used to adjust the values calculated in Step 3. For each operator-aircraft-model-average value, a user, reporting client, or third-party data provider should multiply the baseline emissions value in Step 3 by its corresponding airline emissions reduction percentage.

For the example portfolio, Lessor B leases aircraft to both Airline A and Airline B. Airline A's SERP was calculated for balance sheet item 1 and is 18.54%. Airline B's SERP can be calculated based on the baseline emissions and airline emissions reduction values calculated for balance sheet item 3:

$$Airline\ B\ SERP = \frac{Emissions\ Reduction}{Baseline\ Emissions} = \frac{10{,}048.7}{115{,}200} = 8.72\%$$

Each of these values is now applied to the aircraft-model-average values calculated in Step 3 to determine SAF-adjusted emissions:

$$Emissions = \frac{(220 + 320 + 194.4) * 3.84 * (1 - .1854)}{3} + \frac{(220 + 320 + 194.4) * 3.84 * (1 - .1854)}{3} + \frac{(700 + 800) * 3.84 * (1 - .0872)}{2} = 4{,}160.4\ tons\ CO2e$$

Note that both of the Model A Passenger values were adjusted using Airline A's SERP, while the Model E Cargo value was adjusted using Airline B's SERP.

This adjusted emissions value will be used in subsequent steps to calculate the emissions intensity associated with balance sheet item 4.

Step 5: Measure traffic

For general-purpose finance to a lessor, the relevant value for traffic is the sum of the operator-aircraft-model average for each aircraft owned by the lessor. This is calculated in the same "look through" method as emissions for general-purpose financing to lessors.

[xxv] Due to data limitations, this may not be possible for clients or commercial providers in initial Pegasus Guidelines reporting. As SAF usage becomes more material to net emissions, however, these calculations will need to be performed to ensure that aircraft owned by lessors are not systematically disadvantaged in emissions accounting by excluding the impacts of SAF.

A reporting lessor or third-party data provider calculates:

$$Emissions = \frac{\sum_{a1}^{n1} RTKs}{n1} + \frac{\sum_{a2}^{n2} RTKs}{n2} + \cdots$$

Where subscript $a1$ denotes each individual aircraft of the first model operated **by the leasing airline for that specific aircraft**, and $n1$ is the total number of aircraft of the first model in the leasing airline's fleet, subscript $a2$ denotes each individual aircraft of the second model operated by the leasing airline for that specific aircraft, and $n2$ is the total number of aircraft of the second model in the fleet, and so on.

For passenger aircraft models, the RTK values (assuming RPKs are reported) will be:

$$Traffic = \sum_a RPKs * \frac{100kg}{1000} + Belly\ Cargo\ RTKs$$

For cargo aircraft models, the RTK values are measured directly.

For the example portfolio, relevant traffic values are the operator-aircraft-model average values for a Model A Passenger at Airline A and a Model E Cargo at Airline B. Example traffic values for each aircraft involved in the calculation are given in Exhibit E9:

Exhibit E9: Example traffic for multiple subfleets

Operating Airline	Aircraft Model	RPKs in 2024	Belly Cargo RTKs in 2024	Cargo RTKs in 2024
Airline A	Model A Passenger	9,400,000	0	0
Airline A	Model A Passenger	7,500,000	0	0
Airline A	Model A Passenger	8,000,000	0	0
Airline B	Model E Cargo	0	0	3,400,000
Airline B	Model E Cargo	0	0	2,900,000

Source: RMI analysis

$$Traffic = \frac{(9{,}400{,}000_{RPKs} + 7{,}500{,}000_{RPKs} + 8{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} + \frac{(9{,}400{,}000_{RPKs} + 7{,}500{,}000_{RPKs} + 8{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} + \frac{3{,}400{,}000_{RTKs} + 2{,}900{,}000_{RTKs}}{2} = 4{,}810{,}000 RTKs$$

This value includes passenger, belly cargo, and dedicated cargo, and is calculated on a "look through" basis with airline-aircraft-model-average values. It is used in the following step to calculate the emissions intensity associated with balance sheet item 4.

Step 6: Calculate emissions intensity

Once the relevant emissions and traffic values for a financing are known, the emission intensity associated with that balance sheet item can be calculated. For general-purpose financing to a lessor, this requires summing the emissions and traffic values for each aircraft owned by the lessor before taking the average:

$$Intensity = \frac{\sum_a Emissions}{\sum_a Traffic}$$

Substituting in the terms from the previous steps, the expanded equation for the emission intensity associated with general purpose financing to a lessor is:

$$Intensity = \frac{\frac{\sum_{a1}^{n} Fuel_{a1} * 3.84 \frac{gCO2e}{g\ Fuel}}{n1} * (1 - SERP_{a1}) + \frac{\sum_{a2}^{n} Fuel_{a1} * 3.84 \frac{gCO2e}{g\ Fuel}}{n2} * (1 - SERP_{a2}) + \cdots}{\frac{\sum_{a1}^{n} RTKs}{n1} + \frac{\sum_{a2}^{n} RTKs}{n2} + \cdots}$$

This equation is equivalent to the treatment of multi-aircraft-secured financing (balance sheet item 2), treating the pool of owned aircraft by the lessor as the aircraft in the facility. Note that the emissions and traffic steps may differ from a multi-aircraft-secured facility due to the number of different operating (lessee) airlines involved in a lessor portfolio.

The resulting value is in grams CO_2e per RTK, accounts for the use of SAF, and includes both passenger RTKs and belly cargo.

For the example portfolio, Steps 3-5 produce all the values needed to calculate the emissions intensity associated with balance sheet item 4:

$$Intensity = \frac{4160.4\ tons\ CO2e * 1000 * 1000}{4{,}810{,}000\ RTKs} = 864.9\ \frac{gCO2e}{RTK}$$

Note that emissions are converted from tons to grams to express intensity in grams of CO_2e per RTK. This value will be used in subsequent steps in calculating a portfolio-level average emissions intensity.

Step 7: Calculate portfolio-level emissions intensity

The average emissions intensity at the portfolio-level is required in order to calculate a PAS, and a user may directly disclose this value in addition to its PAS.

Average emissions intensity is calculated based on the exposure of a portfolio to each in-scope balance sheet item. This is calculated via the equation:

$$Portfolio\ intensity = \frac{\sum w_i I_i}{\sum w_i}$$

Where w_i is the exposure to balance-sheet item i and I_i is the emission intensity associated with balance sheet item i, as determined in Steps 3-6.

For the example portfolio, the exposure and intensity values determined in Steps 1-6 are listed in Exhibit E10:

Exhibit E10: Example aviation finance portfolio, with emissions intensities

Balance Sheet Item	Exposure ($Million)	Intensity (gCO_2e/RTK)
1	80	922.5
2	175	732.1
3	250	920.7
4	50	864.9

Source: RMI analysis

Using these values, the portfolio-level average emissions for the example portfolio are calculated as:

$$Portfolio\ Intensity = \frac{(80 * 922.5) + (175 * 732.1) + (250 * 920.7) + (50 * 864.9)}{80 + 175 + 250 + 50} = 856.5 \frac{gCO2e}{RTK}$$

The user may disclose this portfolio average intensity value of 856.5 gCO_2e/RTK and/or use it in the following steps to calculate the PAS.

Step 8: Calculate portfolio benchmark

To calculate the PAS, a user must determine its benchmark emissions intensity for its portfolio in the reporting year. Benchmarks are calculated using the annual emissions and traffic projections supplied by MPP PRU for passenger aircraft and dedicated cargo aircraft.

For the example portfolio, the reporting year is 2024, and all benchmarks are calculated using the MPP PRU emissions and traffic forecasts for passenger and freighter aircraft in 2024. The resulting intensities are shown in Exhibit E11:

Exhibit E11: MPP PRU passenger and cargo roadmap emissions intensities

Year	Aircraft Category	MPP PRU Emissions Intensity (gCO_2e/RTK)
2024	Passenger (inc. belly cargo)	963
2024	Dedicated cargo	649

Source: RMI analysis

To determine the portfolio-level benchmark, the user must first calculate the benchmark associated with each in-scope balance sheet item:

Balance sheet item 1:

The benchmark emissions intensity value associated with a balance sheet item depends on the mix of passenger aircraft and cargo aircraft linked to that financing.

In the case of an aircraft-secured financing for a single aircraft, this value will be either the passenger benchmark or the cargo benchmark, depending on the aircraft model.

For the example portfolio, balance sheet item 1 is linked to a Model A Passenger aircraft, so the corresponding benchmark intensity is the MPP PRU passenger aircraft benchmark intensity in 2024:

$$Balance\ sheet\ item\ 1\ benchmark = 962.7\ gCO2e/RTK$$

Balance sheet item 2:

In the case of an aircraft-secured financing for multiple aircraft, the benchmark value will depend on the relative share of traffic generated by passenger aircraft and cargo aircraft linked to the financing. This is calculated via the equation:

$$Benchmark = \frac{\sum_p Pax\ RTKs_p * Pax\ Benchmark + \sum_f Cargo\ RTKs_f * Cargo\ Benchmark}{\sum_p Pax\ RTKs_p + \sum_f Pax\ RTKs_f}$$

Where subscript p indicates each passenger aircraft in the facility, and subscript f indicates each dedicated freighter aircraft in the facility. The traffic values for each aircraft (i.e., $Pax\ RTKs_p$) should be calculated on an operator-aircraft-model-average basis, as in Step 5.

For the example portfolio, the benchmark associated with balance sheet item 2 depends on the mix of traffic values calculated for the three aircraft in the facility calculated in Step 5. Traffic values from the Model C Passenger and Model B Passenger aircraft count as passenger aircraft RTKs (including belly cargo), while traffic values from the Model D Cargo aircraft count as cargo aircraft RTKs. The traffic values calculated for balance sheet item 2 in Step 5 are:

$$Pax\ RTKs\ (Model\ C\ 1) = \frac{(25{,}400{,}000_{RPKs} + 27{,}500{,}000_{RPKs} + 21{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} = 2{,}463{,}333\ RTKs$$

$$Pax\ RTKs\ (Model\ C\ 2) = \frac{(25{,}400{,}000_{RPKs} + 27{,}500{,}000_{RPKs} + 21{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} = 2{,}463{,}333\ RTKs$$

$$Pax\ RTKs\ (Model\ B) = \frac{(25{,}400{,}000_{RPKs} + 18{,}500{,}000_{RPKs}) * \frac{100kg}{1000} + (100{,}000_{RTKs} + 220{,}000_{RTKs})}{2} = 2{,}355{,}000\ RTKs$$

$$Freighter\ RTKs\ (Model\ D) = \frac{4{,}000{,}000_{RTKs} + 7{,}500{,}000_{RTKs}}{2} = 5{,}750{,}000\ RTKs$$

Using these values, the benchmark intensity for balance sheet item two is calculated as:

$$Benchmark = \frac{2{,}463{,}333 * 962.7 + 2{,}463{,}333 * 962.7 + 2{,}355{,}000 * 962.7 + 5{,}750{,}000 * 649.3}{2{,}463{,}333 + 2{,}463{,}333 + 2{,}350{,}000 + 5{,}750{,}000} = 824.4 \frac{gCO2e}{RTK}$$

Where 962.7 gCO_2e/RTK is the 2024 MPP PRU passenger aircraft intensity, and 649.3 gCO_2e/RTK is the 2024 MPP PRU freighter aircraft intensity. The resulting benchmark value of 824.4 gCO_2e/RTK reflects the underlying share of passenger and cargo traffic generated by the aircraft linked to balance sheet item 2.

Balance sheet item 3:

In the case of general-purpose financing to an airline, the benchmark value will depend on the relative share of traffic generated by passenger aircraft and cargo aircraft operated by the airline. These values will be provided directly by a client reporting template or third-party data provider. The resulting benchmark is calculated as:

$$Benchmark = \frac{(Pax\ RTKs + Belly\ Cargo\ RTKs) * Pax\ Benchmark + Dedicated\ Cargo\ RTKs * Cargo\ Benchmark}{Pax\ RTKs + Belly\ Cargo\ RTKs + Dedicated\ Cargo\ RTKs}$$

For the example portfolio, the benchmark intensity associated with balance sheet item 2 can be calculated using the traffic values supplied by Airline B in Step 5.

$$Benchmark = \frac{(1{,}122{,}000{,}000_{RPKs} * \frac{100kg}{1000} + 1{,}200{,}000_{RTKs}) * 962.7 + 800{,}000_{RTKs} * 649.3}{1{,}122{,}000{,}000_{RPKs} * \frac{100kg}{1000} + 1{,}200{,}000_{RTKs} + 800{,}000_{RTKs}} = 960.5\ \frac{gCO2e}{RTK}$$

This resulting benchmark value of 960.5 gCO_2e/RTK reflect the underlying share of passenger and cargo traffic generated by Airline B.

Balance sheet item 4:

In the case of general-purpose lending to a lessor, the benchmark value will depend on the relative share of traffic generated by passenger aircraft and cargo aircraft owned by the lessor. Those values should be calculated on an operator-aircraft-model-average basis, as in Step 5. The benchmark associated with a general-purpose loan to a lessor is then:

$$Benchmark = \frac{\sum_p((Pax\ RTKs_p + Belly\ Cargo\ RTKs_P) * Pax\ Benchmark) + \sum_f Cargo\ RTKs_f * Cargo\ Benchmark}{\sum_p(Pax\ RTKs_p + Belly\ Cargo\ RTKs_P) + \sum_f Pax\ RTKs_f}$$

Where subscript p indicates the operator-aircraft-model average value for each passenger aircraft in the facility, and subscript f indicates the operator-aircraft-model average value for each dedicated freighter aircraft in the facility. As in Step 5, traffic values may vary for aircraft of the same model if leased to different airlines.

For the example portfolio, the benchmark intensity associated with balance sheet item 4 depends on the ratio of passenger and dedicated cargo traffic generated by the aircraft owned by Lessor B. Traffic generated by the Model A Passenger is counted as passenger aircraft RTKs, while the traffic generated by the Model B Cargo is counted as cargo aircraft RTKs. The traffic values calculated in Step 5 can be used here:

$$Pax\ RTKs = \frac{(9{,}400{,}000_{RPKs} + 7{,}500{,}000_{RPKs} + 8{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} + \frac{(9{,}400{,}000_{RPKs} + 7{,}500{,}000_{RPKs} + 8{,}000{,}000_{RPKs}) * \frac{100kg}{1000}}{3} = 1{,}660{,}000\ RTKs$$

$$Cargo\ RTKs = \frac{3{,}400{,}000_{RTKs} + 2{,}900{,}000_{RTKs}}{2} = 3{,}150{,}000\ RTKs$$

Using these values, the resulting benchmark for balance sheet item 4 is:

$$Benchmark = \frac{1{,}660{,}000 * 962.7 + 3{,}150{,}000 * 649.3}{1{,}660{,}000 + 3{,}150{,}000} = 757.4\ \frac{gCO2e}{RTK}$$

The resulting benchmark of 757.4 gCO_2e/RTK reflects the relative exposure to passenger and cargo aircraft operations of the owned fleet for Lessor B.

Portfolio Benchmark

Once a user has determined the benchmark intensity associated with each item in its balance sheet, it can calculate its portfolio-level benchmark for use in the PAS. As with portfolio intensity, the portfolio benchmark is the exposure weighted average of each balance-sheet-item's benchmark.

This is calculated via the equation:

$$Portfolio\ Benchmark = \frac{\sum w_i B_i}{\sum w_i}$$

Where w_i is the exposure to balance-sheet item i and B_i is the benchmark intensity associated with balance sheet item i, as determined in the preceding step.

For the example portfolio, the relevant values are:

Exhibit E12: Example aviation finance portfolio benchmark values

Balance Sheet Item	Exposure ($Million)	Benchmark (gCO_2e/RTK)
1	80	962.7
2	175	824.4
3	250	960.5
4	50	757.4

Source: RMI analysis

Using these values, the portfolio-level benchmark is calculated as:

$$Portfolio\ Benchmark = \frac{(80 * 962.7) + (175 * 824.4) + (250 * 960.5) + (50 * 757.4)}{80 + 175 + 250 + 50} = 899.6\frac{gCO2e}{RTK}$$

This final value of 899.6 gCO_2e/RTK reflects the relative exposure of the portfolio to passenger and cargo aircraft and is used to calculate the PAS.

Step 9: Calculate PAS

Once a user has calculated its portfolio-level average emissions intensity and portfolio-level benchmark, they can now calculate the final PAS for disclosure. This is done via the following equation:

$$PAS = \frac{Portfolio\ Intensity - Portfolio\ Benchmark}{Portfolio\ Benchmark}$$

The resulting value will reflect the proportional divergence between the portfolio intensity and the portfolio benchmark.

For the example portfolio, this is calculated as:

$$PAS = \frac{856.5\frac{gCO2e}{RTK} - 899.6\frac{gCO2e}{RTK}}{899.6\frac{gCO2e}{RTK}} = \mathbf{-0.048}$$

This resulting PAS of -4.8% indicates that the portfolio average emissions intensity is 4.8% lower (better) than the corresponding benchmark for the portfolio. **The user in this example would disclose a PAS of -4.8%, demonstrating that they are climate-aligned as compared to the MPP PRU 1.5°C scenario for 2024.**

Lucy Kessler, Nicholas Halterman, and Meghan Morgan, *Pegasus Guidelines for the Aviation Sector*, RMI, 2024, **https://climatealignment.org/wp-content/uploads/2024/01/pegasus-guidelines.pdf**.

RMI Innovation Center
22830 Two Rivers Road
Basalt, CO 81621

www.rmi.org