tClara

# The Climate's Case Against Low-Cost Airfare Policies

## Big Implications for Business Travel

May, 2025

# FAIR WARNING

This report may cause some discomfort. That's intentional.

The findings challenge several long-standing beliefs about what makes for responsible business travel. If your current travel policies are designed to reduce the cost of airfares, this report will likely prompt you to question their value to your business and their impact on our climate.

Here's the central tension: low-cost airfare policies come with **high amounts of carbon per dollar.** By reducing the prices paid for airfares, **they cause more**, not fewer, emissions from the travel budget.

Eliminating low-cost airfare policies means buying higher-priced airfares. This trade-off forces a natural filter: when airfares are more expensive, companies approve fewer trips. And that's where the opportunity lies.

While not every low-cost trip is a low-value one, it's undeniable that **low fares create demand for low-value travel.** Higher fares, on the other hand, deter low-value trips far more than they deter high-value trips. *The Justified Business Trip*, a whitepaper by tClara, found that **25% to 30% of business trips are low-value**.

The implication is clear: if companies pay higher prices for airfares, they will reduce the number of low-value trips, shrink their carbon footprint, and create more value from their travel budgets.

Adopting low-carbon-intensity airfare policies won't just reduce emissions. It will also help companies prioritize higher-value trips and offer travelers better-quality itineraries. That's a win for sustainability, productivity, and the ROI on business travel.

This report is your invitation to reimagine what carbon-responsible business travel looks like.

# BRIEFLY

Air travel is inherently carbon-intensive. Fortunately, companies can decarbonize their airline spend and reduce emissions by avoiding high-carbon-intensity airfares.

High-carbon-intensity airfares are pervasive. They account for 33% of spend, 38% of tickets, and **53% of the carbon emissions** analyzed in this study of more than 100,000 tickets bought by businesses last year.

Companies can reduce the carbon intensity of their air travel by changing their travel policies and adopting new features in online booking tools. These policies could have reduced carbon emissions in this data set **by 12% to 28%.**

Low-intensity airfare policies decrease emissions and carbon intensity by accepting higher airfares and fewer trips. Companies can use this study's findings and implications to assess the costs and benefits of adopting low-intensity airfare policies and carbon-sensitive booking tools.

**CONTEXT** begins on the next page

**FINDINGS** begin on page 13

**IMPLICATIONS and METHODS** begin on page 22

**NEXT STEPS** begin on page 28

# CONTEXT

# Glossary and Conventions

**Carbon Emissions and Emissions** – As used in this report, synonyms for greenhouse gases, primarily carbon dioxide.

**$CO_2e$ (Carbon Dioxide Equivalent)** – A standard unit for measuring carbon footprints that accounts for the global warming potential of different greenhouse gases, expressed in terms of $CO_2$.

**Greenhouse Gas (GHG) Emissions** – Gases like $CO_2$, methane, and nitrous oxide that contribute to global warming, often measured in carbon dioxide equivalents ($CO_2e$).

**Economic Carbon Intensity** – The amount of carbon emissions (kg $CO_2e$) produced per unit of economic activity, such as per dollar spent on travel.

**Spend-based Airfare Carbon Intensity** – A metric that measures carbon emissions per dollar spent on airfare (e.g., kg $CO_2e$ per $). It helps businesses set carbon reduction goals and compare emissions across flights.

**High-Intensity Airfares** – Tickets with a carbon intensity equal to or greater than a defined value (e.g., 0.67 kg $CO_2e$ per $ in 2024), signifying more emissions per dollar spent.

**Low-Intensity Airfares** – Tickets with a carbon intensity below the defined value (e.g., 0.67 kg $CO_2e$ per $ in 2024), signifying less emissions per dollar spent.

**Long-Haul** – One-way trip distances equal to or greater than 3,000 nautical miles (~ 7 hours flight time) based on the origin to destination's great circle distance.

**Short-Haul** – One-way trip distances less than 3,000 nautical miles (~7 hours flight time) based on the origin to destination's great circle distance.

**Science Based Targets initiative (SBTi)** – A global initiative that sets corporate climate action guidelines, requiring companies to reduce emissions in line with scientific targets.

**Scope 3 Emissions** – Indirect emissions from a company's supply chain and operations, including business travel-related emissions.

**Scope 3.6 (Business Travel Emissions)** – The subcategory of Scope 3 emissions that specifically accounts for emissions generated by business travel.

**Ticket and Tkt** – A purchased set of one or more flights issued to one passenger. Includes direct, indirect, one-way, and return journeys unless otherwise noted.

**Ticketed Airfare Data** – Information on purchased flight tickets, including price, taxes and fees, itinerary details, and emissions.

**Travel Impact Model (TIM)** – A tool for calculating CO2e estimates for passengers on commercial flights worldwide. See page 12.

**Well-To-Tank (WTT)** – Emissions from fuel extraction, refining, and transportation before it reaches the aircraft.

**Tank-To-Wake (TTW)** – Emissions produced directly by burning fuel during flight.

**Well-To-Wake (WTW)** – The full lifecycle emissions of aviation fuel, combining WTT and TTW values, excluding any Radiative Forcing Index impact.

**All distances are in nautical miles.**
**All CO2e values are Well-To-Wake unless otherwise noted.**
**All airfare spend includes ticket taxes and fees and excludes travel agency fees.**

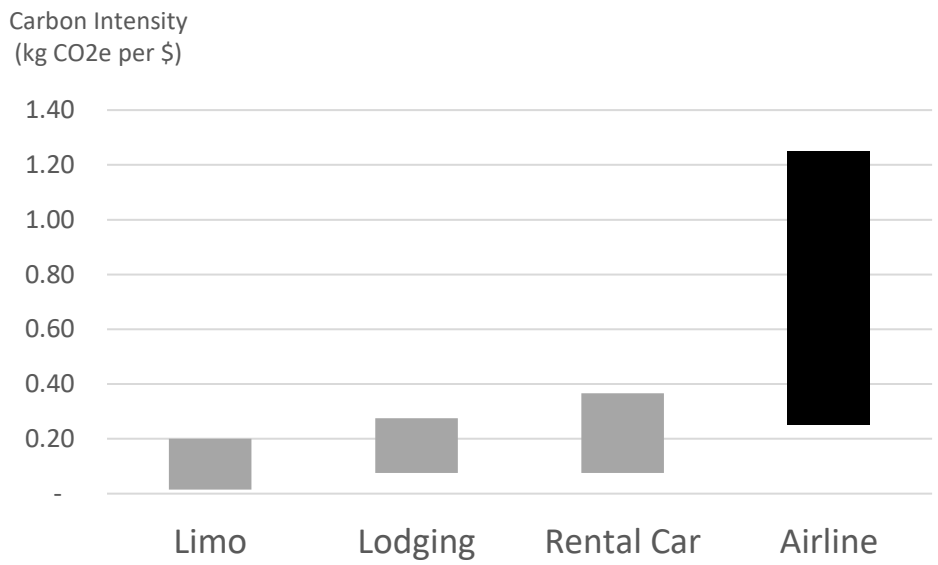
# About Business Travel's Carbon Intensity

Companies cause travel-related carbon emissions when travelers rent cars, use limos, stay at hotels, and travel by airline.

With the proper reporting tools, companies can monitor the spending and carbon emissions for each travel activity and find its carbon intensity measured as carbon emissions per dollar.

These spend-based carbon intensities vary by travel activity.

LIKELY RANGE OF CARBON INTENSITIES BY TRAVEL ACTIVITY




Source: tClara

**Air travel is the most carbon-intensive of these travel activities.**

Because air travel's carbon intensity varies so widely, companies sensitive to their travel emissions must focus on managing it.

# About The Spend-based Airfare Carbon Intensity Metric

The spend-based airfare carbon intensity metric, e.g., 0.67 kg CO2e per airfare dollar, is useful for carbon reduction goal-setting and benchmarking against peer groups, airlines, and other Scope 3 emissions categories.

The Science Based Targets initiative (SBTi) guidance[1] allows economic intensity reduction goals for Scope 3 emissions, including business travel. SBTi requires long-term reduction goals of 97% of the baseline year's value and the use of Well-To-Wake (WTW) values for transportation-related reduction goals.

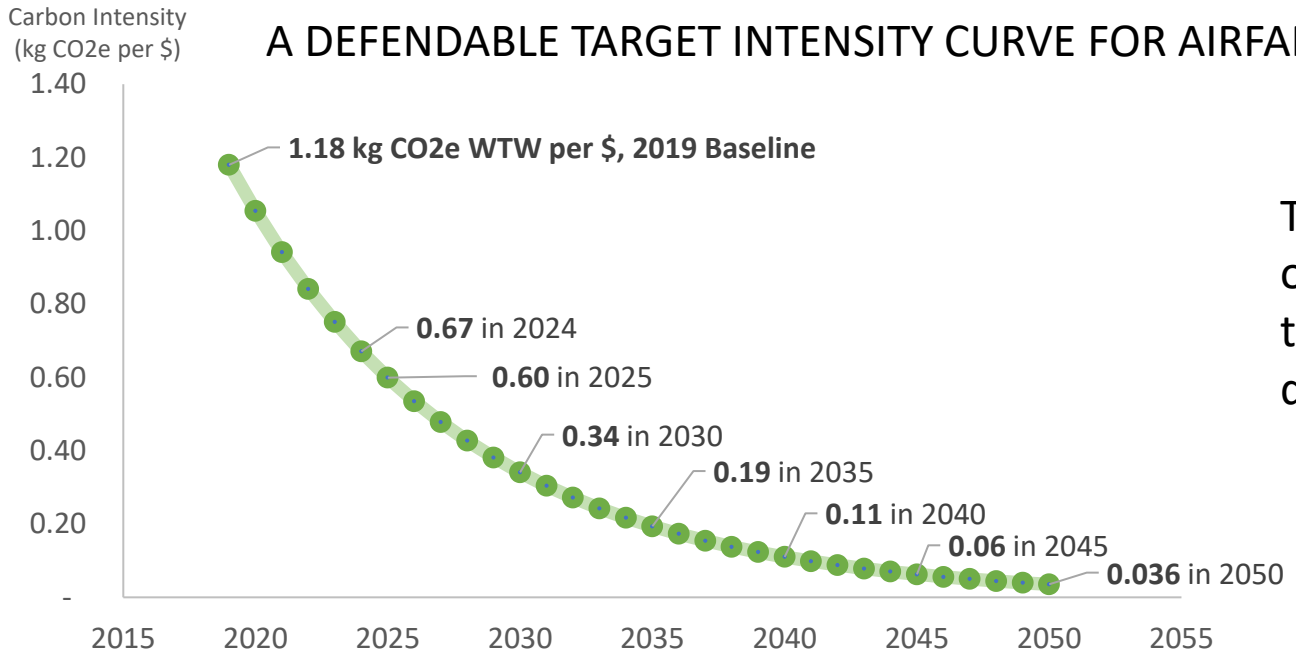
The European Sustainability Reporting Standards require the reporting of GHG reduction goals in absolute value and "if meaningful" in intensity value[2].

| | | | |
|---|---|---|---|
| AIRFARE EXAMPLE | 300 kg CO2e / $400 Airfare including taxes and fees | = | CARBON INTENSITY **0.75 kg CO2e per $** |
| AIRLINE EXAMPLE | 36M mt CO2e / $40B Revenue not including taxes and fees | = | **0.90 kg CO2e per $** |
| AIR TRANSPORT INDUSTRY EXAMPLE | 1,000M mt CO2e / $900B Revenue not including taxes and fees | = | **1.11 kg CO2e per $** |

1. SBTi CORPORATE NET-ZERO STANDARD, Version 1.2, March 2024
2. DRAFT European Sustainability Reporting Standards E1 Climate Change November 2022

# Setting Defendable Airfare Carbon Intensity Targets Through 2050

The 2019 baseline value of 1.18 kg CO2e per $ derives from the International Air Transport Association's (IATA) reported 2019 industry-wide revenues and fuel consumption, adjusted for taxes and Well-To-Wake CO2e factors. This baseline value is reduced by 10.7% p.a., the rate needed to eliminate 97% of carbon emissions by 2050, in line with SBTi guidance. Targets are in 2019 dollars.

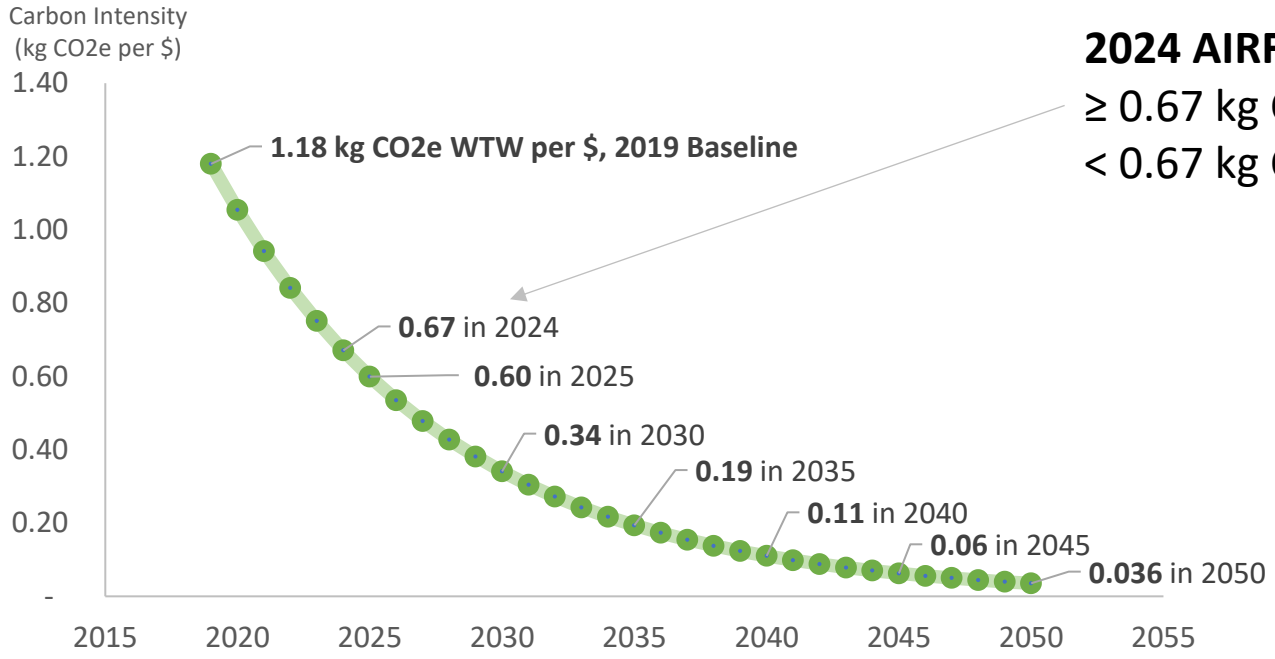



This curve provides companies with objective and defendable annual targets to measure their progress toward decarbonizing their spend on airfares.

Sources: IATA Industry Fact Sheet, December 2024 at https://www.iata.org/en/iata-repository/pressroom/fact-sheets/industry-statistics/
U.S. Energy Information Administration at https://www.eia.gov/environment/emissions/co2_vol_mass.php
CO2e factors from the Travel Impact Model documentation at https://github.com/google/travel-impact-model
Analysis by tClara

# Defining High-Intensity Airfares

The defendable target intensity curve for airfares serves to define high- and low-intensity airfares in a given year. Any airfare with a carbon intensity greater than or equal to the year's target value is high-intensity. This study uses the 2024 target intensity of 0.67 kg CO2e per $ to determine each airfare's intensity category.




**2024 AIRFARE INTENSITY CATEGORIES**

≥ 0.67 kg CO2e per $ = High-Intensity

< 0.67 kg CO2e per $ = Low-Intensity

Sources: IATA Industry Fact Sheet, December 2024 at https://www.iata.org/en/iata-repository/pressroom/fact-sheets/industry-statistics/
U.S. Energy Information Administration at https://www.eia.gov/environment/emissions/co2_vol_mass.php
CO2e factors from the Travel Impact Model documentation at https://github.com/google/travel-impact-model
Analysis by tClara

# Profile of This Study's Sample Data

The sample's overall **carbon intensity is 0.61 kg** CO2e per airfare dollar, based on **$71.1 million in gross airfares** from **101.9 thousand tickets** responsible for **43.3 metric tons** of carbon emissions.

| Cabin Group | Tickets | Gross Airfare | kg CO2e WTW | Average Airfare | Avg kg CO2e / Tkt | Avg. Carbon Intensity kg / $ | Avg. One-way Distance, nm | Avg. Days Advance Purchase |
|---|---|---|---|---|---|---|---|---|
| Economy | 90,049 | $ 44,498,419 | 27,011,179 | $494 | 300 | 0.61 | 957 | 12.6 |
| Premium Economy | 2,631 | $ 1,977,937 | 1,088,323 | $752 | 414 | 0.55 | 1,272 | 13.9 |
| Business / First | 9,218 | $ 24,642,831 | 15,227,185 | $2,673 | 1,652 | 0.62 | 2,161 | 17.0 |
| **Totals / Averages** | **101,898** | **$ 71,119,187** | **43,326,687** | **$698** | **425** | **0.61** | **1,074** | **13.0** |

Source: Grasp Technologies and Travel Impact Model
Analysis by tClara

# About the Ticketed Airfare Data Provided by Grasp Technologies

Grasp Technologies is an industry-leading provider of travel and payment data reporting tools and services for corporations and travel management companies.

Grasp drew from its travel databases an anonymized sample of ~135,000 airline tickets issued in the US. Grasp was granted access to the Travel Impact Model's historical emissions data which it used to report the carbon emissions for each flight on every ticket.

The sample data was scrubbed to eliminate records with outlier values in price, days advance purchase, number of coupons, distance flown, circuity, and carbon intensity. This resulted in a clean set of the ~102,000 airfares used in this study.

The data covers tickets from more than 200 airlines and more than 10,000 city pairs. All tickets were issued in 2024 for travel occurring in 2024.

tClara analyzed the airfare and carbon emissions data and prepared this report.

# About the Carbon Emissions Data Provided by the Travel Impact Model

The Travel Impact Model (TIM) provides passenger-level greenhouse gas emissions estimates for commercially scheduled flights worldwide. The TIM calculates CO2e values at Well-To-Tank, Tank-To-Wake, and Well-To-Wake levels with no Radiative Forcing Index factor.

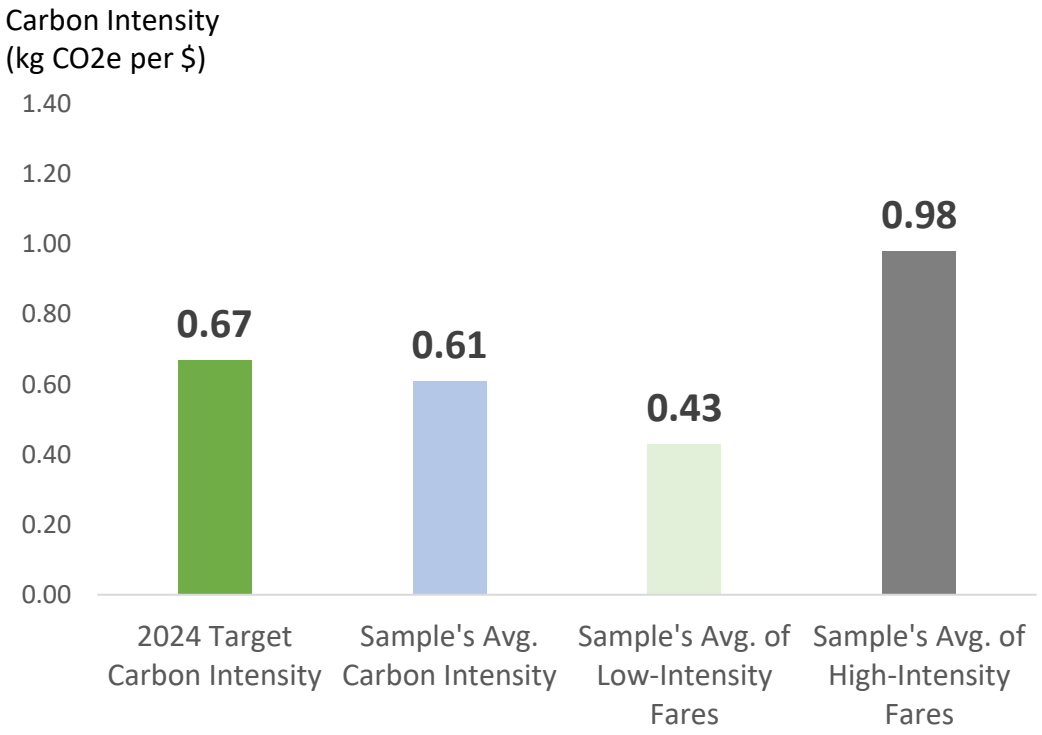
Detailed information about the TIM's logic and data sources is at https://github.com/google/travel-impact-model

Grasp Technologies accessed the TIM's database of historic global passenger-level CO2e values on 20 November 2024. The CO2e data in this report uses the TIM's Well-To-Wake values for every flight in the study.

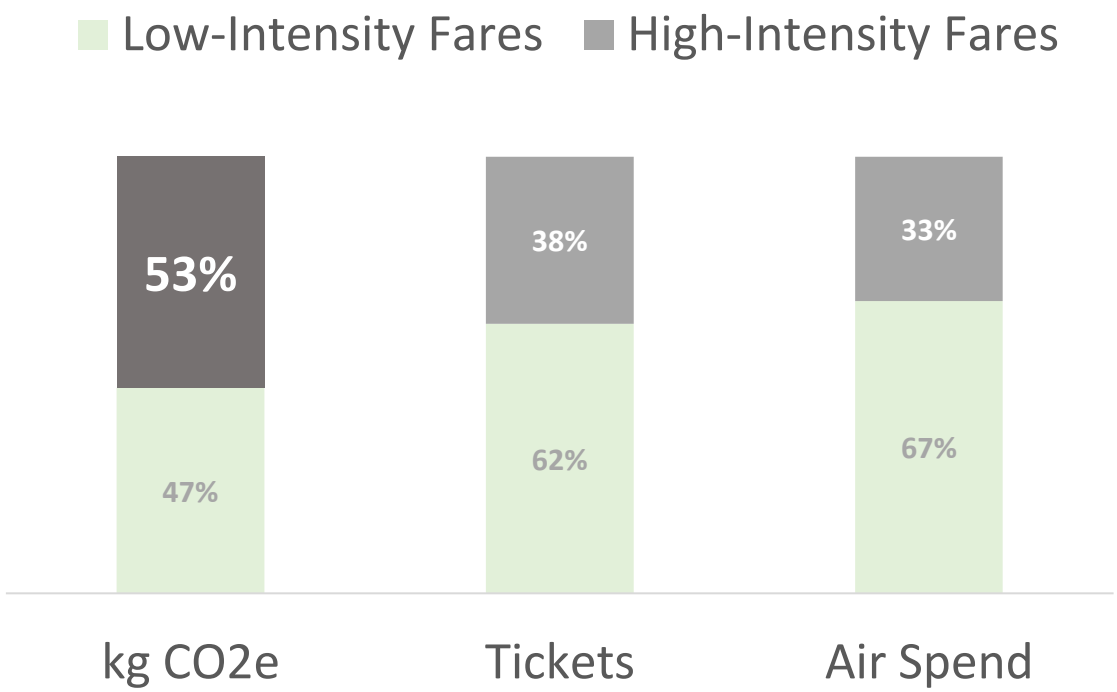
# FINDINGS

At 0.61, this sample's carbon intensity is six points (nine percent) below **2024's nominal target of 0.67** kg per dollar.

While this is good, it could have been better because…

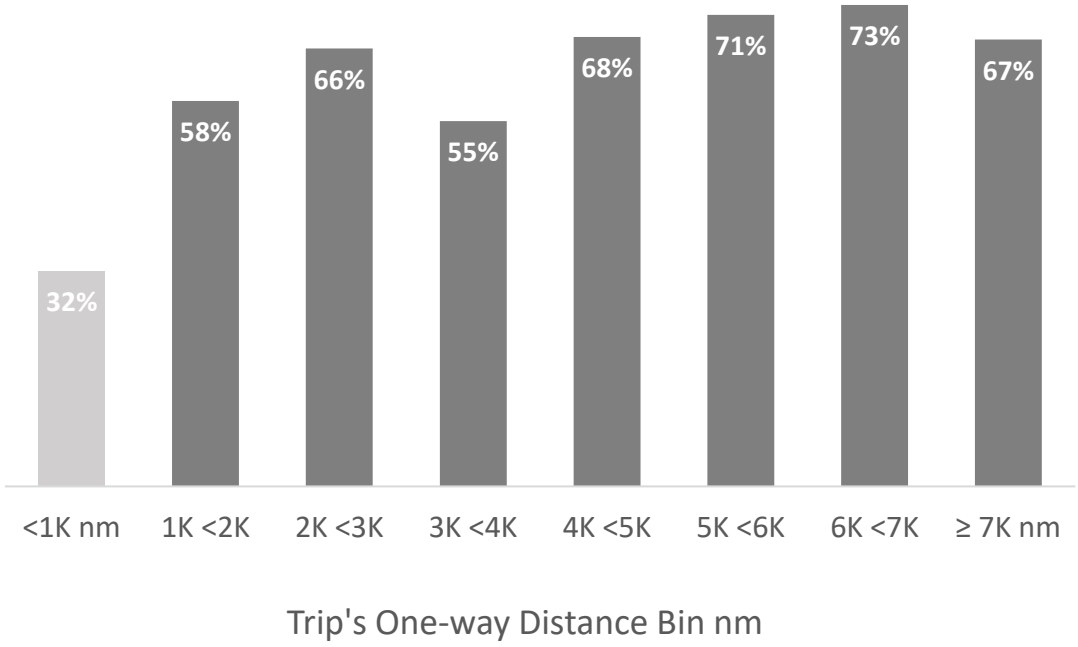



…High-intensity airfares account for more than half (53%) of the sample's carbon emissions

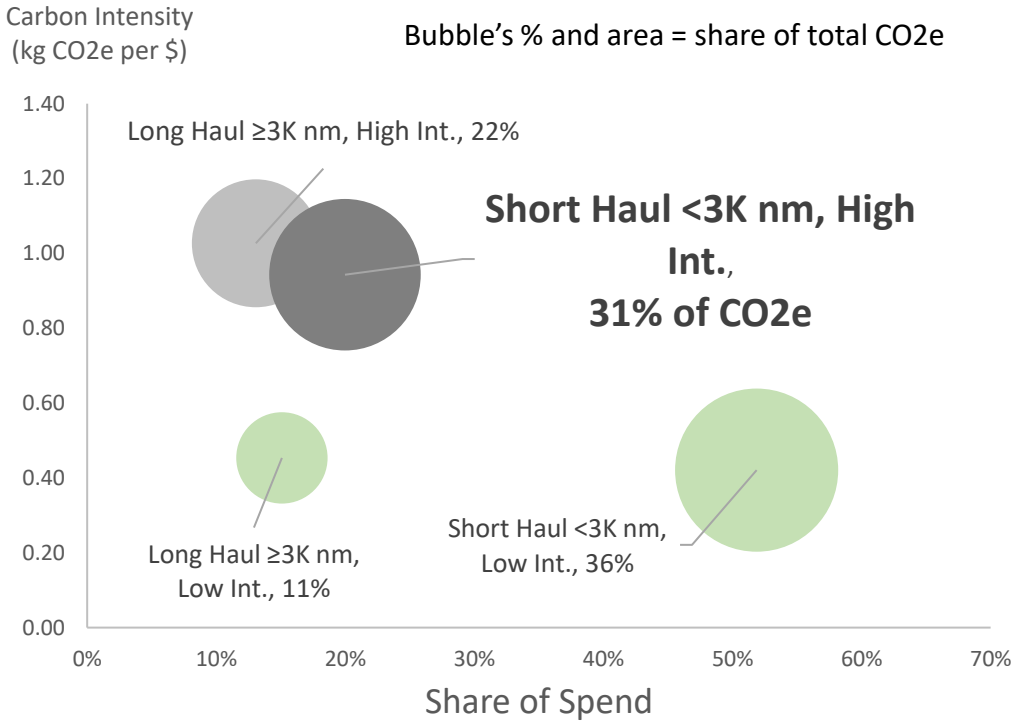


# High-intensity airfares account for over half of emissions from trips longer than 1,000 miles.

Share of kg CO2e In Each Distance Bin From High-Intensity Fares

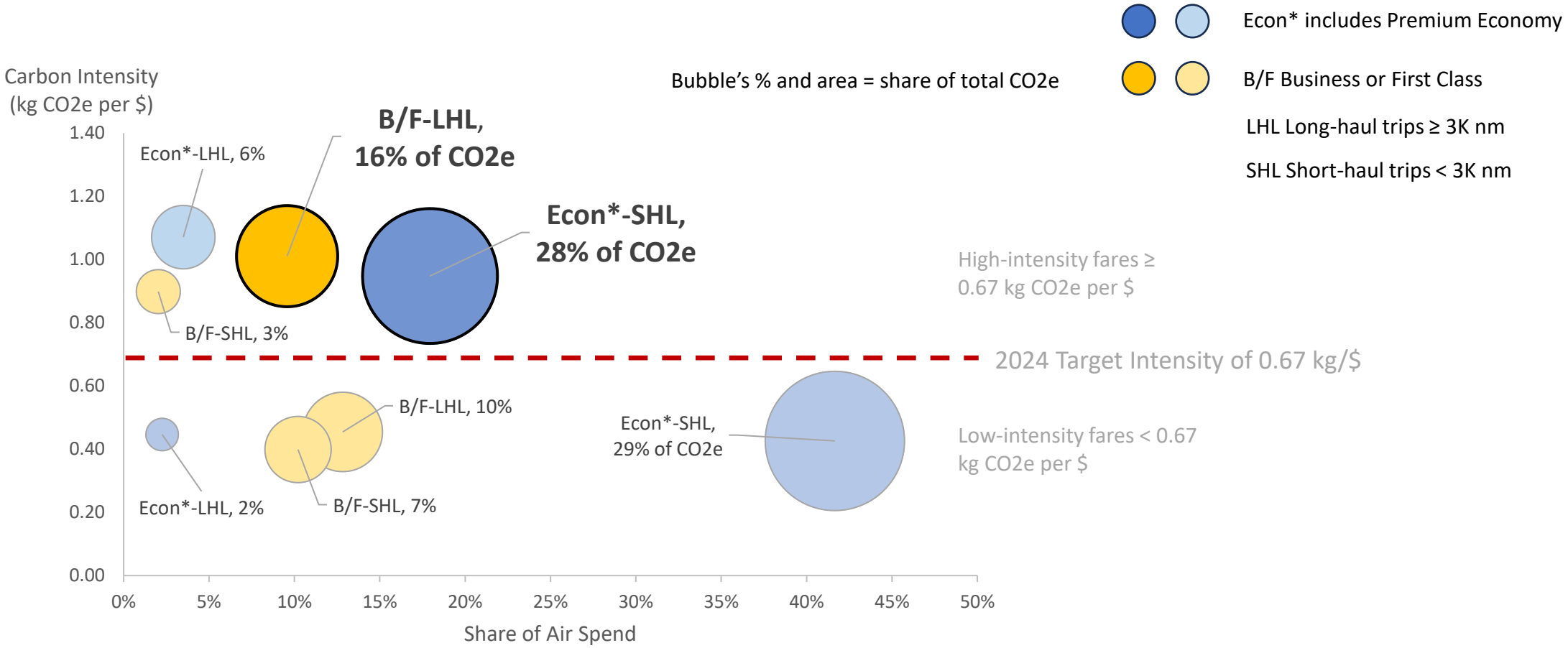



# 31% of all emissions come from high-intensity airfares in short-haul* markets.



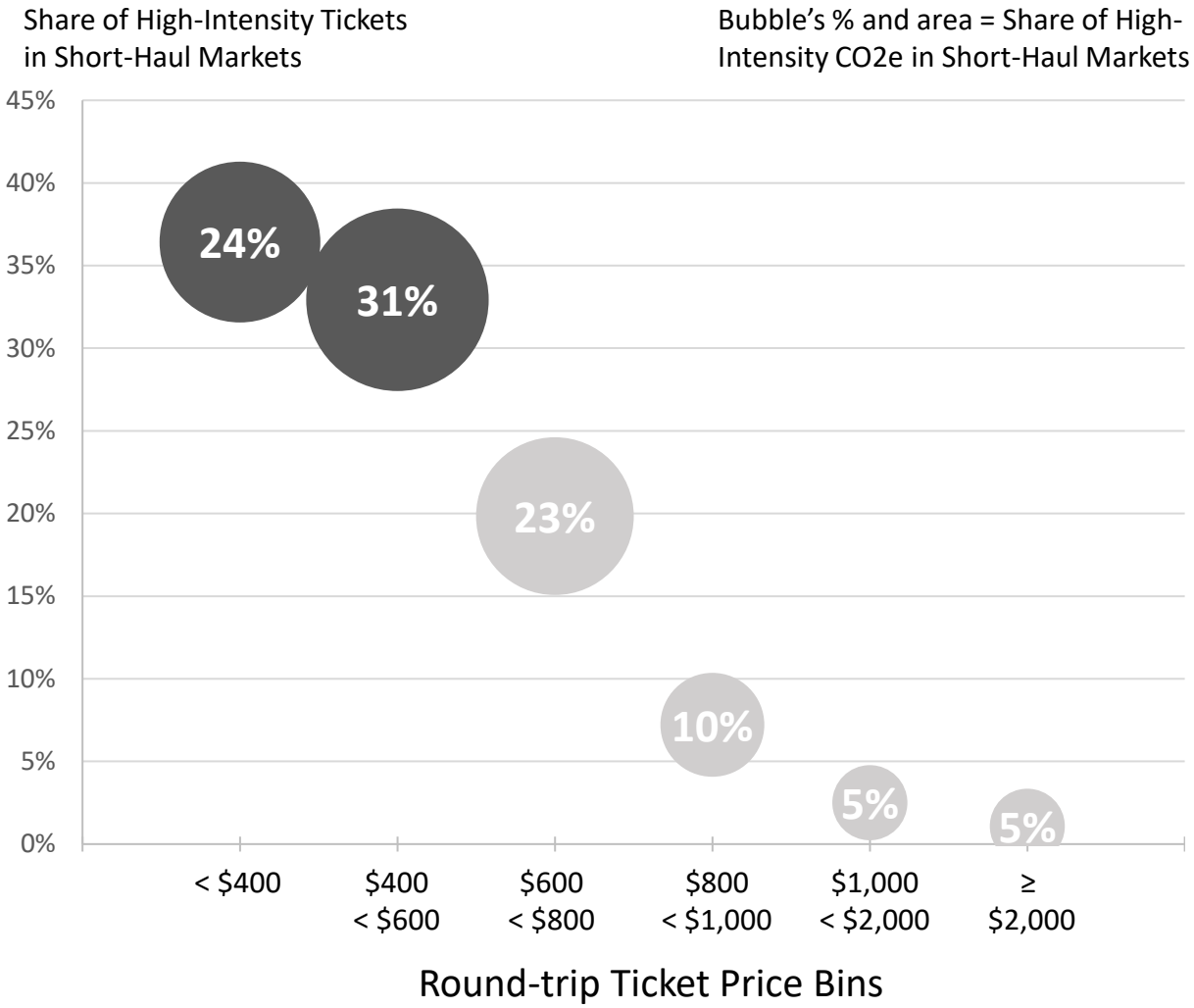

*Short-haul: One-way trip distances less than 3,000 nm, ~7 hours flight time

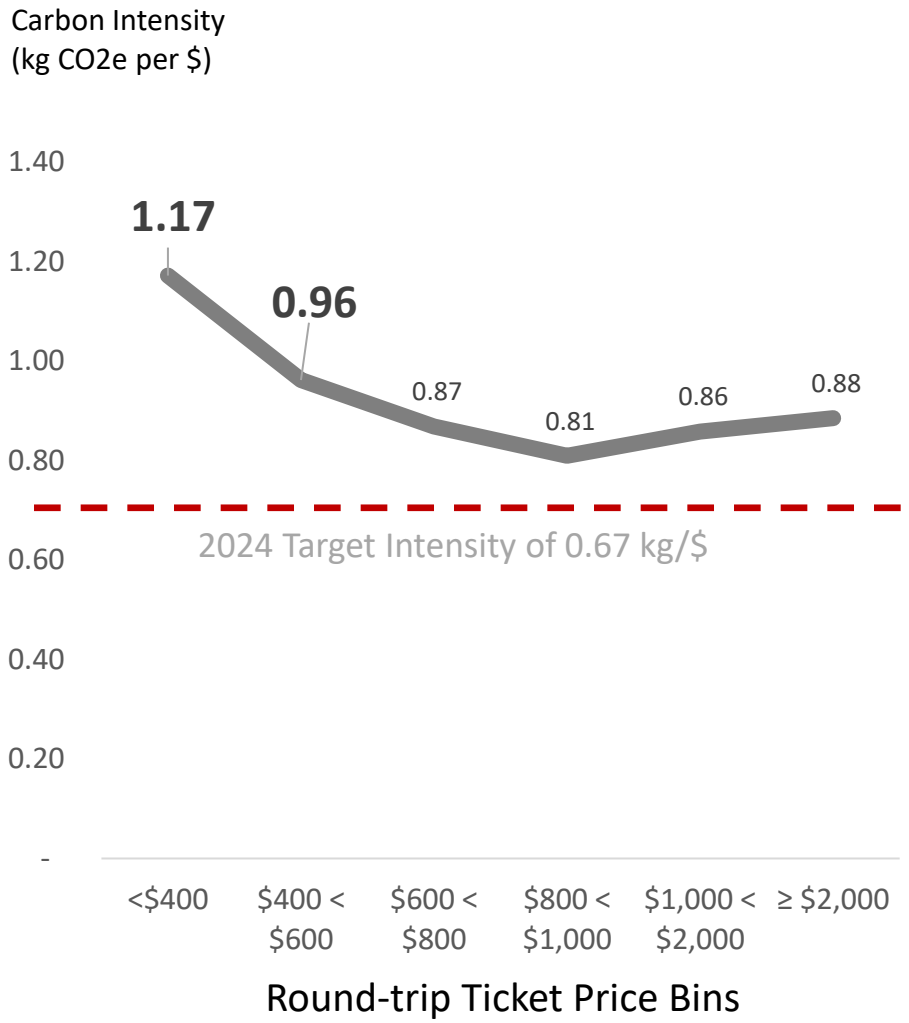
# 44% of all emissions come from high-intensity airfares in the Economy*[1] cabin on short-haul[2] trips (28%) and in the Business or First cabins on long-haul trips(16%).



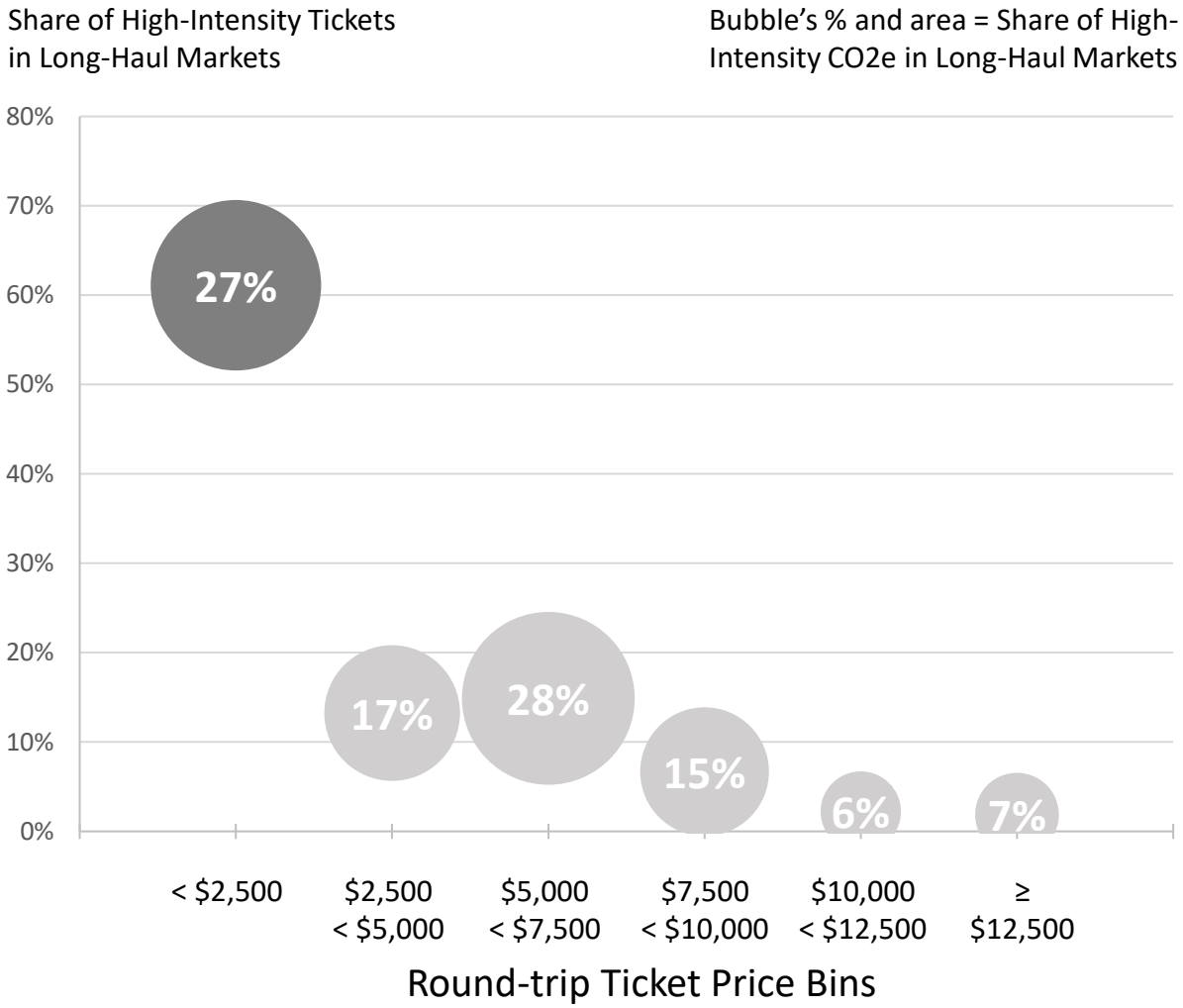

1. Economy* includes Premium Economy tickets.
2. Short-haul: One-way trip distances less than 3,000 nm, ~7 hours flight time

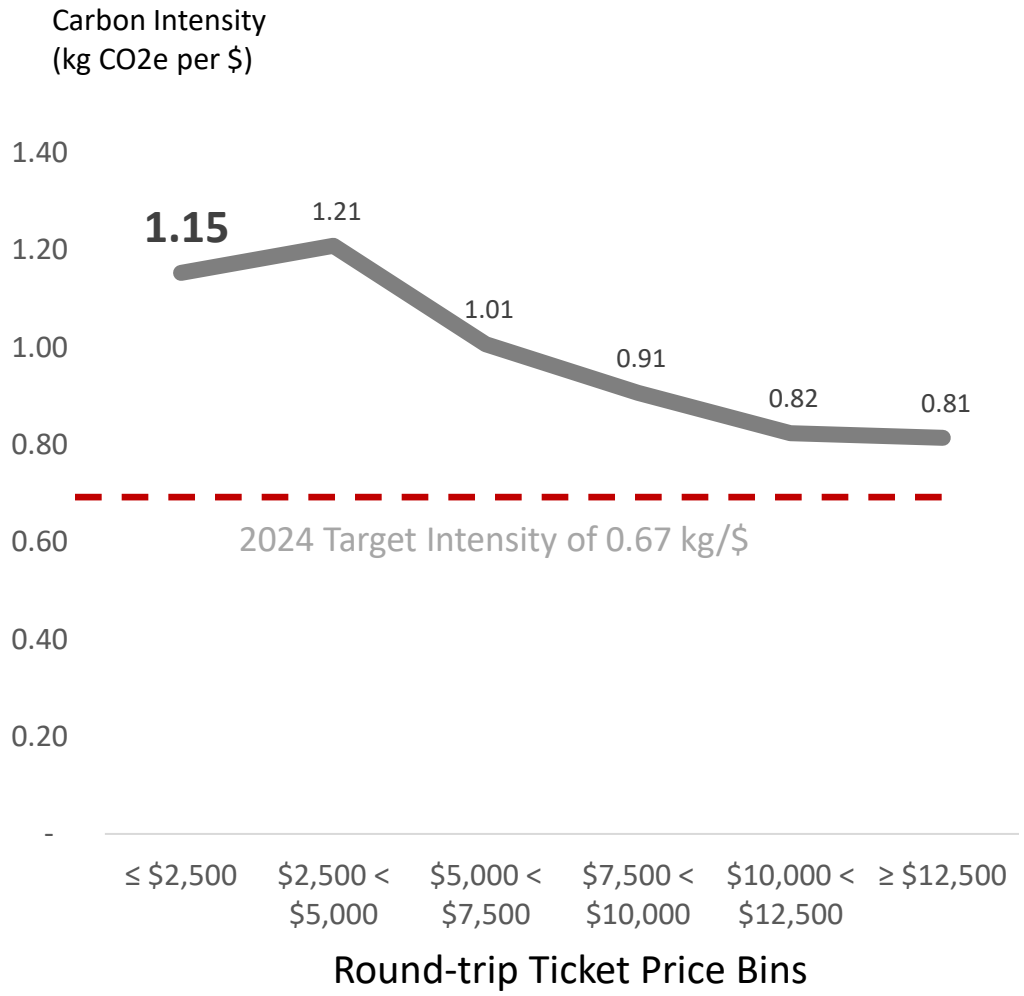
# **55% of short-haul** high-intensity emissions are from round-trip tickets priced at $600 or less. These tickets have very high carbon intensity.



# **27% of long-haul** high-intensity emissions are from round-trip tickets priced at $2,500 or less. These tickets have very high carbon intensity.

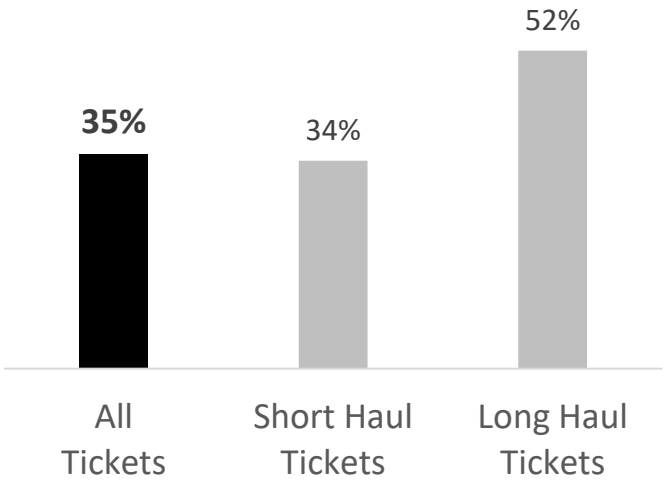


# Connecting, aka indirect, flights create more carbon emissions.

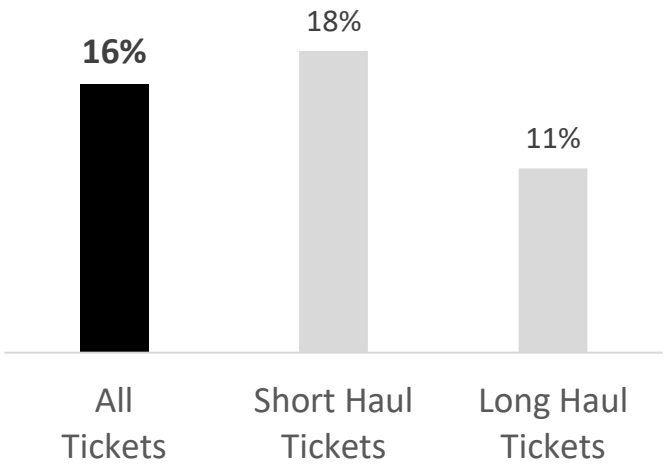
**35%** of all tickets in the sample have connections

Connecting Flights' Share of Ticket Category

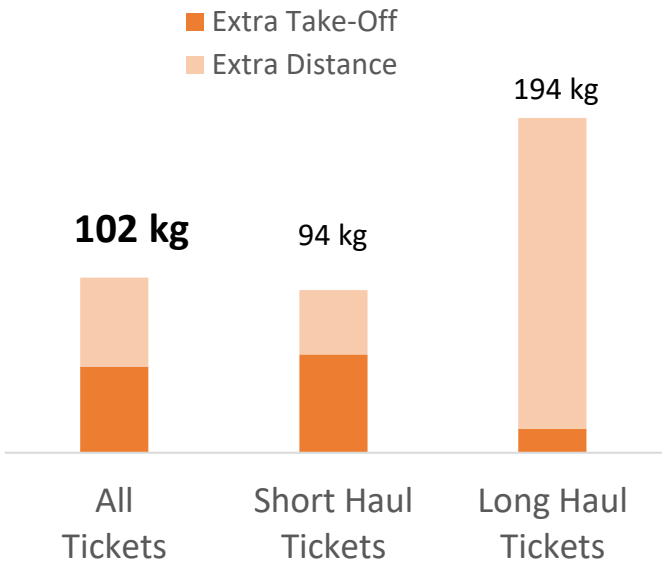



The average connection **adds 16%** more distance than a non-stop flight

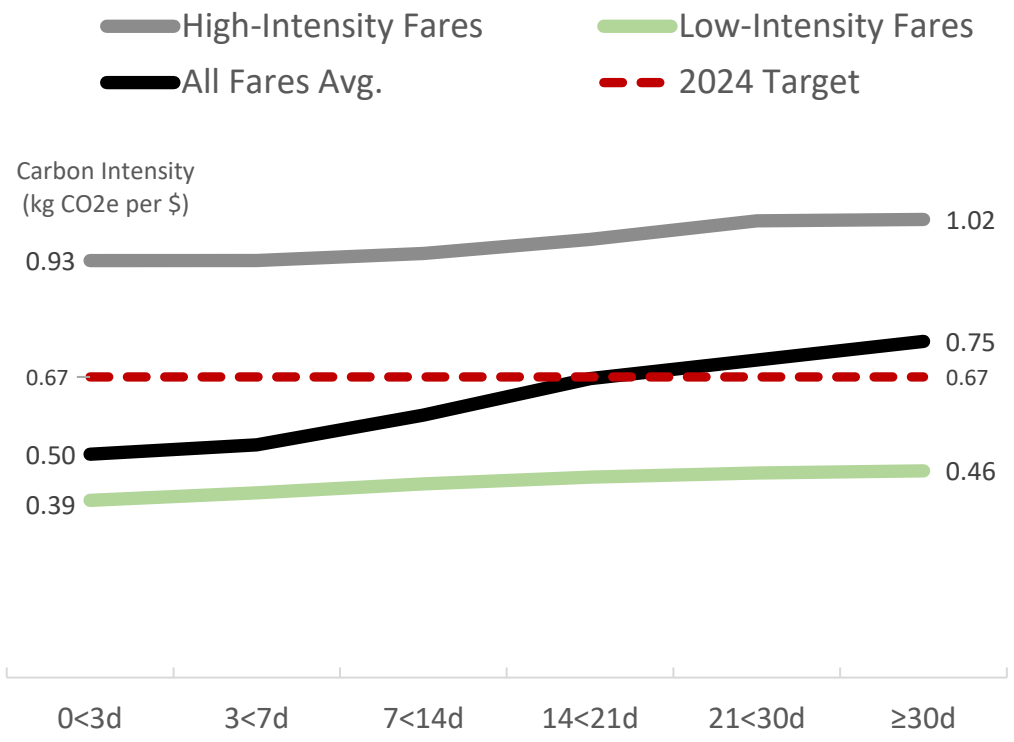
Avg. Extra Distance Flown vs Non-stop Distance



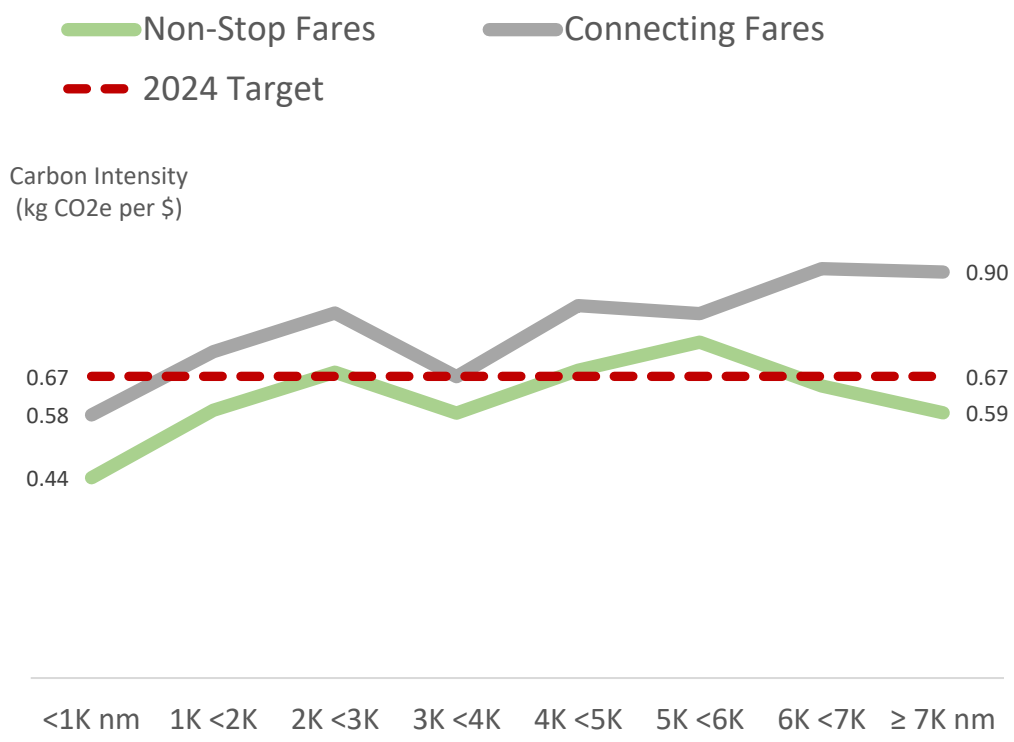

The average connection's extra take-off and distance **add 102 kg** of carbon per Economy ticket



# Airfares with longer advance purchases or connecting flights have higher carbon intensities.

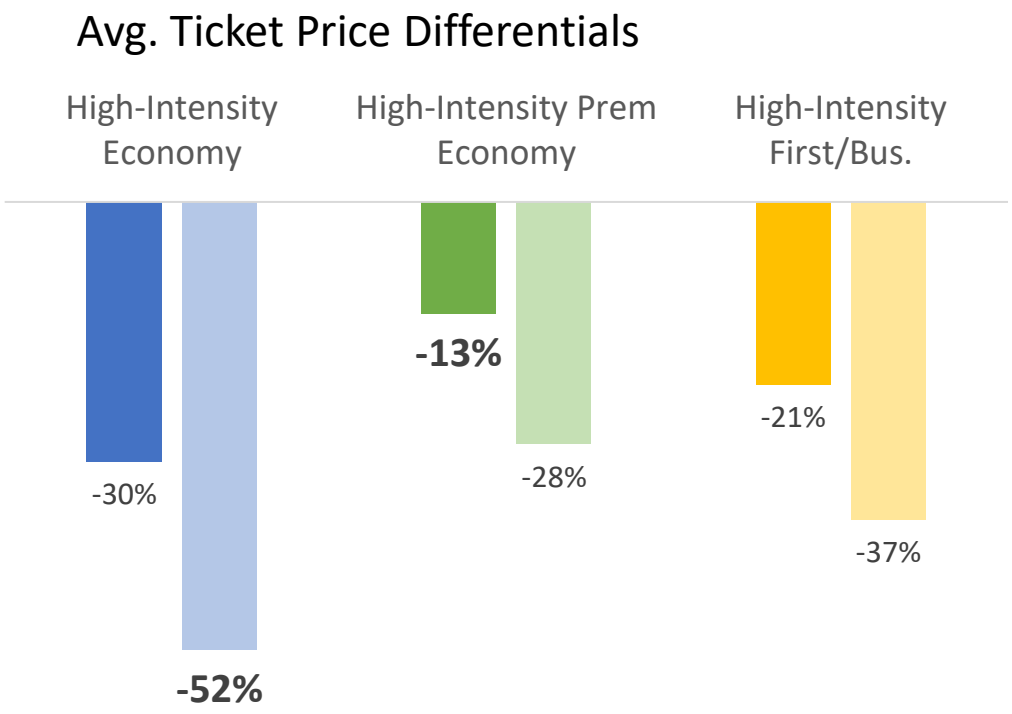



Days Advance Purchase




Trip's One-way Distance Bins

# Average high-intensity airfare prices are 13% to 52% lower than their low-intensity counterpart prices.




| Cabin and Stage Group | Avg. Low Intensity Fare | Avg. High Intensity Fare | High-Intensity Fares are Lower by |
|---|---|---|---|
| **Economy** | | | |
| Short Haul <3K nm | $532 | $373 | **-30%** |
| Long Haul | $2,127 | $1,031 | **-52%** |
| **Prem Economy** | | | |
| Short Haul <3K nm | $556 | $485 | **-13%** |
| Long Haul | $3,338 | $2,407 | **-28%** |
| **First/Business** | | | |
| Short Haul <3K nm | $1,313 | $1,037 | **-21%** |
| Long Haul | $8,667 | $5,491 | **-37%** |

tClara

# IMPLICATIONS
# And METHODS

# Implications of Eliminating High-intensity Airfares

Companies can reduce their carbon emissions while maintaining their current travel budgets by eliminating purchases of high-intensity airfares.

Everything else being equal, a low-intensity airfare will cost more than a high-intensity airfare. This is a feature, not a bug for companies striving to decarbonize their air spend.

Shifting to higher-priced, lower-intensity fares will reduce the number of trips available from the travel budget. This is the primary driver for reducing the amount of carbon emissions.

These higher prices will force managers to approve trips more carefully, preventing the least valuable trips from being taken. A tClara study found **25% to 30% of business trips are low-value**[(1)]. Buying higher-priced airfares should result in a higher return on the travel budget from using it on fewer but higher-value trips.

Furthermore, these higher-priced, lower-intensity airfares should be used to purchase higher-quality airfares, such as those with more flexible change rules, better seating, and more convenient itineraries. Higher-quality airfares may improve the likelihood of success on these higher-value trips.

[1]tClara, *The Justified Business Trip*, April 2023, p. 20 https://www.tclara.com/register-for-tjbt

# Low- and High-Tech Options For Eliminating High-intensity Airfares

**A Low-tech Policy Option**

Companies could change their travel policy's stance on cabins to encourage or require that tickets be booked in Premium Economy class or higher. The data from this study suggests that, overall, a Premium Economy cabin policy would have little impact on the average ticket price and number of trips while reducing carbon emissions by 12%. Implementing such a policy would not require any new features in travel booking tools.

In this dataset, it would raise the prices and reduce the available trips in the short-haul markets where trip distances are less than 3,000 NM one way. It would reduce the average price and increase the number of available trips in long-haul markets. These effects on prices and trips largely cancel each other out in this sample.

**A High-tech Booking Tool Option**

Most of the major corporate travel booking tools can or will soon be able to report each airfare's estimated carbon emissions. A booking tool could use this information to calculate the fare's carbon intensity and compare it to the company's intensity cap, e.g., 0.67 kg CO2e, and prioritize low-intensity airfares in every airfare search result. Companies interested in this path must encourage their booking tool providers to bridge this feature gap.

# Low-Intensity “What If” Scenarios Reveal Potential Costs and Benefits

Stakeholders can test the consequences of low-intensity travel policies with “what if” scenario modeling. tClara tested six scenarios to assess the likely change in the sample’s

- Number of trips available in the budget (based on the average ticket price and same total spend)
- Average ticket price
- Amount of carbon emissions
- Carbon intensity

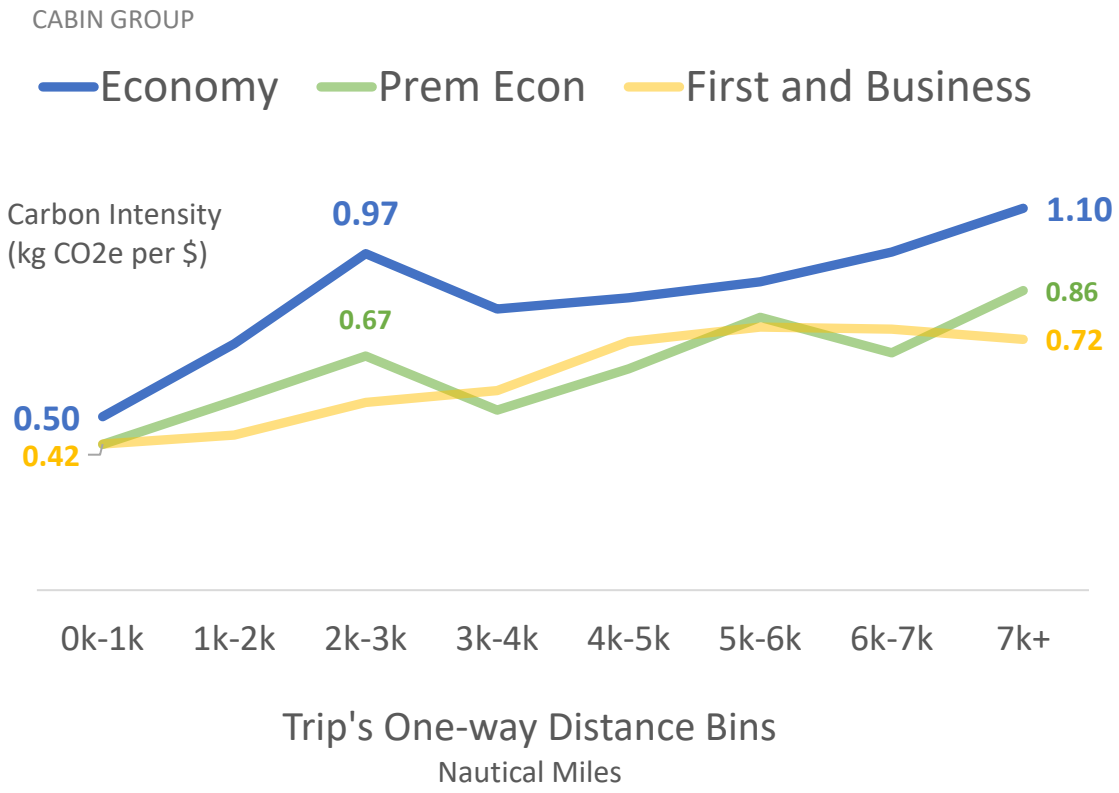
**The “One Cabin For All Trips” Scenarios**

What if a company required all trips to be taken in the same cabin, regardless of distance, flight time, or job title? The scenarios on page 26 test the impact of replacing all airfares in each distance bin with the distance bin’s average ticket price and carbon intensity of the three tested cabins.

**The “Intensity Cap” Scenarios**

What if a company prohibited the purchase of any airfare classified as “high-intensity?” Much depends on the ticket prices of alternative low-intensity fares. The scenarios on page 27 test three different assumptions about this variable within each distance bin.

# Economy airfares have the highest average carbon intensity in every distance bin, making it the worst cabin for reducing total emissions.



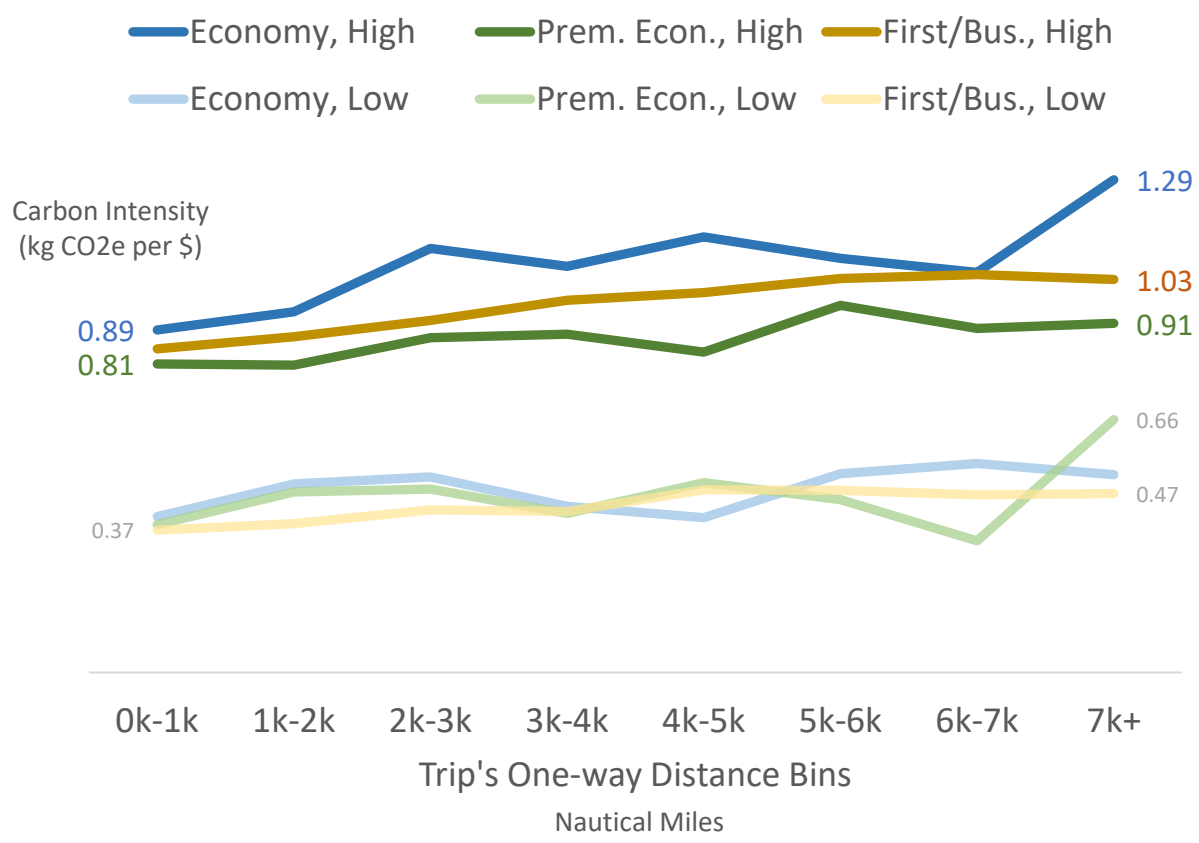

IF ALL TICKETS WERE ISSUED IN ONE CABIN GROUP[1]:

| Impact on Metric | All Economy | All Premium Economy | All First / Business |
|---|---|---|---|
| Total Spend | 0% change | 0% | 0% |
| Avg. Ticket Price | -17% | -1% | +70% |
| No. Trips | +20% | +1% | -41% |
| **Total CO2e** | **+14%** | **-12%** | **-16%** |
| **Carbon Intensity** | **+0.08 pts** | **-0.07** | **-0.10** |

1. These findings use 100% of the sample's spend, average ticket price, and average intensity values for each cabin group and distance bin. Results will vary for other airfare data samples.

# A capping strategy's impact depends on the cap's level and the price of available airfares with below-cap carbon intensities.

CABIN AND AVG. INTENSITY LEVEL LOW IS < 0.67 kg/$




IMPACT OF THREE INTENSITY CAPPING SCENARIOS

| Impact on Metric | 1. Airfares Bought at the 0.67 kg/$ Intensity Cap | 2. Airfares Bought at Distance and Cabin's Avg. Low-Intensity Value | 3. Mid-point of the two methods |
|---|---|---|---|
| Total Spend | 0% change | 0% | 0% |
| Avg. Ticket Price | +13% | +25% | +19% |
| No. Trips | -12% | -20% | -16% |
| **Total CO2e** | **-17%** | **-28%** | **-22%** |
| **Carbon Intensity** | **-0.10 pts** | **-0.17** | **-0.13** |

# NEXT STEPS

# For stakeholders intrigued by these ideas for reducing air travel's carbon intensity, start by

**READING** THESE ARTICLES AND WHITE PAPERS:

Managed Travel's New North Star

The Strategically Sustainable Business Travel Program

The Justified Business Trip

The Need For Long-sighted Travel Policies

The Invisible Carbon Budget

Low Fares Have Hidden Carbon Costs
(with an Excel model)

The Coolest U.S. Airline in 2022 Was…

**INITIATING** ONE OR MORE OF THESE PROJECTS:

- Conduct a carbon intensity analysis on recently purchased airfares.
- Run "what-if" scenarios to gauge the impact of low-intensity airfare policies on ticket prices, available trips, and carbon emissions.
- Discuss with online airfare booking tool providers the potential for prioritizing low-intensity airfares in search results.
- Quickly assess your organization's Scope 3.6 maturity level using this scale.

For assistance with decarbonization analysis and strategy, contact Scott Gillespie at scott@tclara.com

# For stakeholders ready now to reduce their air travel's carbon intensity, start here:

**MEASURE** AIR TRAVEL CARBON INTENSITY VARIANCES TO YOUR INTENSITY GOAL

- ✓ Use a target goal from page 8, or divide your air travel's carbon budget by the air travel's expense budget
- ✓ Monitor the monthly actual-to-goal variance

**ELIMINATE** THESE HIGH-INTENSITY TRAVEL POLICIES

- 🚫 Purchase tickets at least 14 days in advance
- 🚫 Use connecting flights to save money
- 🚫 Use lowest-logical fares
- 🚫 Require travel in Economy class
- 🚫 Use lowest-carbon per mile, kilometer, or trip

**REQUEST** NEW FEATURES in travel booking tools that will

- Calculate each fare's carbon intensity and compare it to the company's intensity cap
- Prioritize low-intensity fares in the shopping phase
- Alert travelers if they select a high-intensity fare
- Offer low-intensity alternatives before purchase

# About tClara

tClara shows large companies how to reduce business travel emissions by eliminating low-value trips.

We provide carbon intensity diagnostics, airfare optimization studies, and decarbonization strategies, all designed to help clients conduct carbon-responsible business travel.

Scott Gillespie, tClara's founder, is an industry thought leader, keynote speaker, and consultant based near Cleveland, Ohio.

Scott shares thoughts and welcomes connections on LinkedIn.