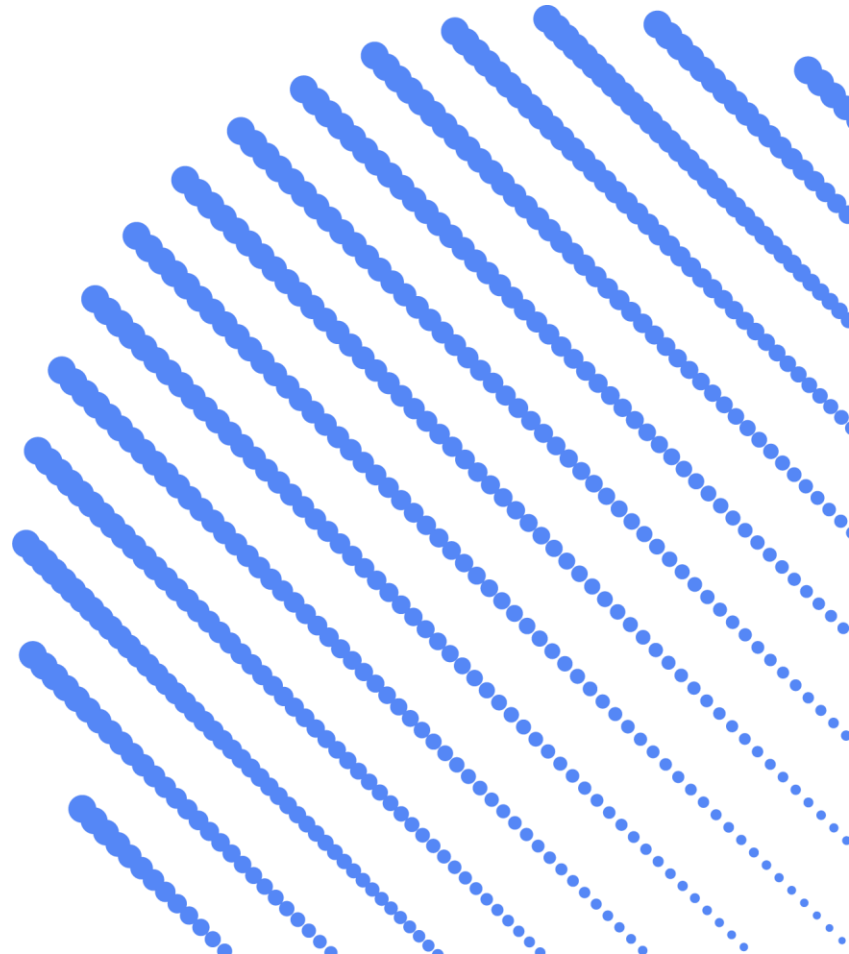




Transition  
Pathway  
Initiative

# Management Quality and Carbon Performance of Airlines: March 2019

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# Research Funding Partners



We would like to thank our Research Funding Partners for their ongoing support to the TPI and their enabling the research behind this report and its publication.



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# Key messages

- This slide set reports on TPI's latest assessment; our first of the world's largest publicly owned airlines.
- The airline sector makes a significant and fast-growing contribution to climate change: currently it accounts for 2% of global CO<sub>2</sub> emissions and 12% of transport-related CO<sub>2</sub> emissions. In addition, aviation has climate impacts beyond CO<sub>2</sub> emissions, such as the formation of contrails and clouds, which are likely to be significant.
- Most of the 20 airlines we assess demonstrate awareness of climate change as a business issue and are building capacity by disclosing their operational emissions and setting emissions targets.
- Four airline companies are taking a strategic approach to climate change: ANA Group, Delta, Lufthansa and United.
- Compared with other sectors in the TPI database, airlines are about mid-table on Management Quality. Relatively many companies in this sector have set quantified emissions targets, but relatively few align executive remuneration with ESG issues, incorporate climate risks and opportunities in their strategy, or undertake and disclose climate scenario planning.

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## Key messages continued

- TPI benchmarks the Carbon Performance of airlines based on their CO<sub>2</sub> emissions from flight operations. Non-CO<sub>2</sub> effects on warming are not included, as currently they are not incorporated in company disclosures, or in the IEA model used to benchmark the sector, due to the uncertainty in quantifying them. Further progress needs to be made on understanding airlines' overall impact on the climate, as non-CO<sub>2</sub> effects are thought to be significant. If they were taken into account, the benchmarks would almost certainly be tighter.
- Most large publicly owned airlines have a CO<sub>2</sub> emissions intensity that is below the TPI benchmarks at present. Up to 2020, this is set to remain the case. Three quarters of airlines have an emissions or fuel efficiency target for 2020 and most of those airlines will have a CO<sub>2</sub> emissions intensity below the benchmarks in 2020.
- However, in the longer term, the airline sector performs poorly, with none of the 20 airlines providing a 2030 target that would clearly reduce flight emissions. Some airlines have no long-term target and most others have adopted the industry-wide approach of controlling *net* emissions through offsetting. More ambitious targets are needed, as is more transparency about how much airlines will rely on offsets to meet their targets. According to IEA and others, the airline sector will have to reduce its own emissions significantly.

# About the Transition Pathway Initiative

# About TPI and this slide set

TPI is a global initiative led by Asset Owners and supported by Asset Managers. Aimed at investors, it assesses companies' progress on the transition to a low-carbon economy, supporting efforts to address climate change. Established in January 2017, TPI is now supported by more than 40 investors with over £10.3/\$13.3 trillion AUM.

Using companies' publicly disclosed data, TPI:

- Assesses the quality of companies' management of their carbon emissions and of risks and opportunities related to the low-carbon transition, in line with the recommendations of TCFD;
- Assesses how companies' planned or expected future Carbon Performance compares to international targets and national pledges made as part of the 2015 UN Paris Agreement;
- Publishes the results via an open-access online tool: [www.transitionpathwayinitiative.org](http://www.transitionpathwayinitiative.org).

This slide set presents our latest assessment; our first of the airlines sector.



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# TPI Partners

The Grantham Research Institute on Climate Change and the Environment, a research centre at the London School of Economics and Political Science (LSE), is TPI's *academic partner*. It has developed the assessment framework, provides company assessments, and hosts the online tool.

FTSE Russell is TPI's *data partner*. FTSE Russell is a leading global provider of benchmarking, analytics solutions and indices.

The Principles for Responsible Investment (PRI) provides a *secretariat* to TPI. PRI is an international network of investors implementing the six Principles for Responsible Investment.



THE LONDON SCHOOL  
OF ECONOMICS AND  
POLITICAL SCIENCE ■



Grantham  
Research Institute  
on Climate Change  
and the Environment



# TPI design principles

Company assessments are based only on publicly available information: *disclosure-based*

Outputs should be useful to Asset Owners and Asset Managers, especially with limited resources: *accessible and easy to use*

Aligned with existing initiatives and disclosure frameworks, such as CDP and TCFD: *not seeking to add unnecessarily to reporting burden*

Pitched at a high level of aggregation: *corporation-level*





# Overview of the TPI Tool

TPI's company assessments are divided into 2 parts:

1. *Management Quality* covers companies' management/governance of greenhouse gas emissions and the risks and opportunities arising from the low-carbon transition;
2. *Carbon Performance* assessment involves quantitative benchmarking of companies' emissions pathways against the international targets and national pledges made as part of the 2015 UN Paris Agreement, for example limiting global warming to below 2°C.

Both of these assessments are based on company disclosures.

## TPI Tool

The TPI tool enables the assessment of companies' carbon management quality and carbon performance, within a selected sector.

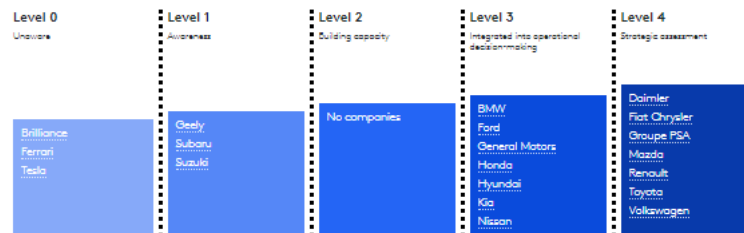
A tutorial to help you use the tool can be found [here](#).

[Download complete data set as an MS Excel file](#)

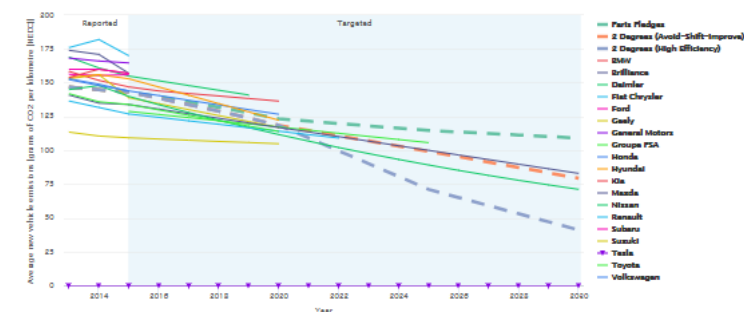
Autos

Filter companies ▾

### Management Quality: Autos



### Carbon Performance: Autos



# Management Quality

Level 0

Unaware

Level 1

Awareness

Level 2

Building capacity

Level 3

Integrating into operational decision making

Level 4

Strategic assessment

TPI's Management Quality framework is based on 16-17 indicators, each of which tests whether a company has implemented a particular carbon management practice. These 16-17 indicators are used to map companies on to 5 levels/steps. The data are provided by FTSE Russell.

Company does not recognise climate change as a significant issue for the business

Company explicitly recognises climate change as a relevant risk/opportunity for the business

Company has a policy (or equivalent) commitment to action on climate change

Company has set GHG emission reduction targets

Company has published info. on its operational GHG emissions

Company has nominated a board member/committee with explicit responsibility for oversight of the climate change policy

Company has set quantitative targets for reducing its GHG emissions

Company reports on its Scope 3 GHG emissions

Company has had its operational GHG emissions data verified

Company supports domestic & international efforts to mitigate climate change

Company has a process to manage climate-related risks

Company discloses Scope 3 GHG emissions from use of sold products (selected sectors only)

Company has set long-term quantitative targets (>5 years) for reducing its GHG emissions

Company has incorporated ESG issues into executive remuneration

Company has incorporated climate change risks and opportunities in its strategy

Company undertakes climate scenario planning

Company discloses an internal carbon price

# Carbon Performance

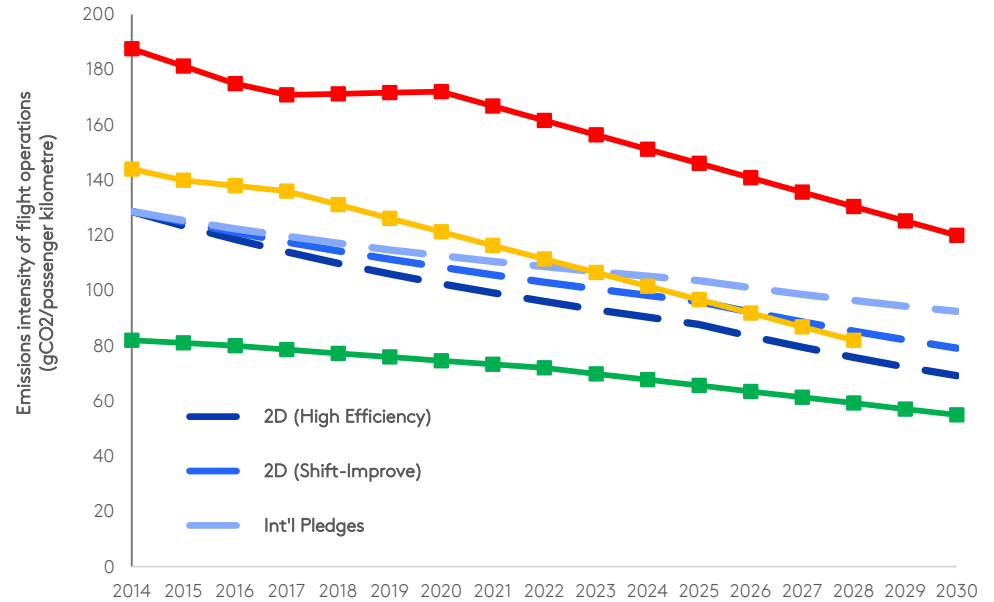
TPI's Carbon Performance assessment tests the alignment of company targets with the Paris Agreement goals, using the same basic approach as Science-Based Targets.

Benchmarking is sector-specific and based on emissions intensity.

For the airline sector, TPI uses 3 benchmark scenarios:

1. *International Pledges*, reflecting pledges made by countries as part of the Paris Agreement and commitments made at the UN's International Civil Aviation Organisation to reduce international aviation emissions;
2. *2 Degrees (Shift-Improve)*, consistent with the overall aim of the Paris Agreement, albeit at the low end of the range of ambition;
3. *2 Degrees (High Efficiency)*, a variant of the previous scenario that assumes there is no shift in air passengers to lower-carbon modes of transport and instead all emissions reductions are delivered through increased fuel efficiency and low-carbon jet fuel.

Further details on methodology can be found in the appendix to this slide set and in a separate Methodology Note for the airlines sector.



Company A is not aligned with any of the benchmarks

Company B is eventually aligned with the 2 Degrees (Shift-Improve) benchmark but not the 2 Degrees (High Efficiency) benchmark

Company C is aligned with all the benchmarks, including 2 Degrees (High Efficiency)

# Treatment of carbon offsets

Beyond 2020, many airlines replace a fuel efficiency target with two absolute targets set by the international airline industry:

- to cap **net** emissions at 2020 levels;
- to halve **net** emissions by 2050 from 2005 levels.

These net targets rely on the use of carbon offsets purchased from other sectors to augment emissions reductions within the airline sector.

The IEA model produces a carbon budget for air transport that excludes the use of offsets. IEA projects that, after taking into account emissions reductions from other sectors, airlines will still have to reduce their **gross** emissions significantly.

We do not currently take into account airline emissions targets that rely on offsets, because it is unclear how much airlines' gross emissions will fall.



# Non-CO<sub>2</sub> climate impacts of aviation

The airline sector's contribution to climate change is more than just its CO<sub>2</sub> emissions. Aircraft flying at altitude affect warming through emissions of Nitrogen Oxides and water vapour, and the formation of contrails and cirrus clouds.

There is high uncertainty about the contribution of these non-CO<sub>2</sub> effects to global warming, but they are thought to be significant.

Currently non-CO<sub>2</sub> effects are not incorporated in company disclosures, or in the models used to benchmark them. Therefore TPI's analysis is necessarily restricted to CO<sub>2</sub> emissions at this stage. Taking non-CO<sub>2</sub> effects fully into account would almost certainly result in tighter benchmarks.



# Results: Management Quality of Airlines

# Management Quality level

Level 0

Unaware

Level 1

Awareness

Level 2

Building capacity

Level 3

Integrating into operational decision making

Level 4

Strategic assessment

4 companies

ANA Group  
Delta  
Lufthansa  
United

6 companies

Alaska Air  
IAG  
Japan Airlines  
Jetblue  
LATAM  
Qantas

4 companies

American Airlines  
Easyjet  
IndiGo  
Southwest

5 companies

Air China  
China Southern  
Korean Air  
Singapore Airlines  
Turkish Airlines

1 company

Wizz Air

\* Companies disclose new information all the time and, since this assessment was undertaken, some companies have provided enhanced disclosures (e.g. Wizz Air). Therefore companies' Management Quality ratings may not always reflect their most up-to-date disclosures. TPI updates its assessments once a year.

# Management Quality level

Airlines' average Management Quality score is 2.4, putting the average company in this sector just short of halfway between "Building capacity" (Level 2) and "Integrating into operational decision making" (Level 3).

Six out of 20 airline companies are on Levels 0 and 1, while 10 out of 20 companies are on Levels 3 and 4.

Compared with other sectors in the TPI database, airlines' Management Quality is about mid-table, with several other sectors, such as autos and electricity, outperforming it.

No company satisfies all Management Quality criteria: there are not yet any 4\* airlines.

There is no clear relationship between Management Quality and Carbon Performance in this sector. Easyjet, for example, is on Level 2 for Management Quality, while achieving the best Carbon Performance in the sample (see below).





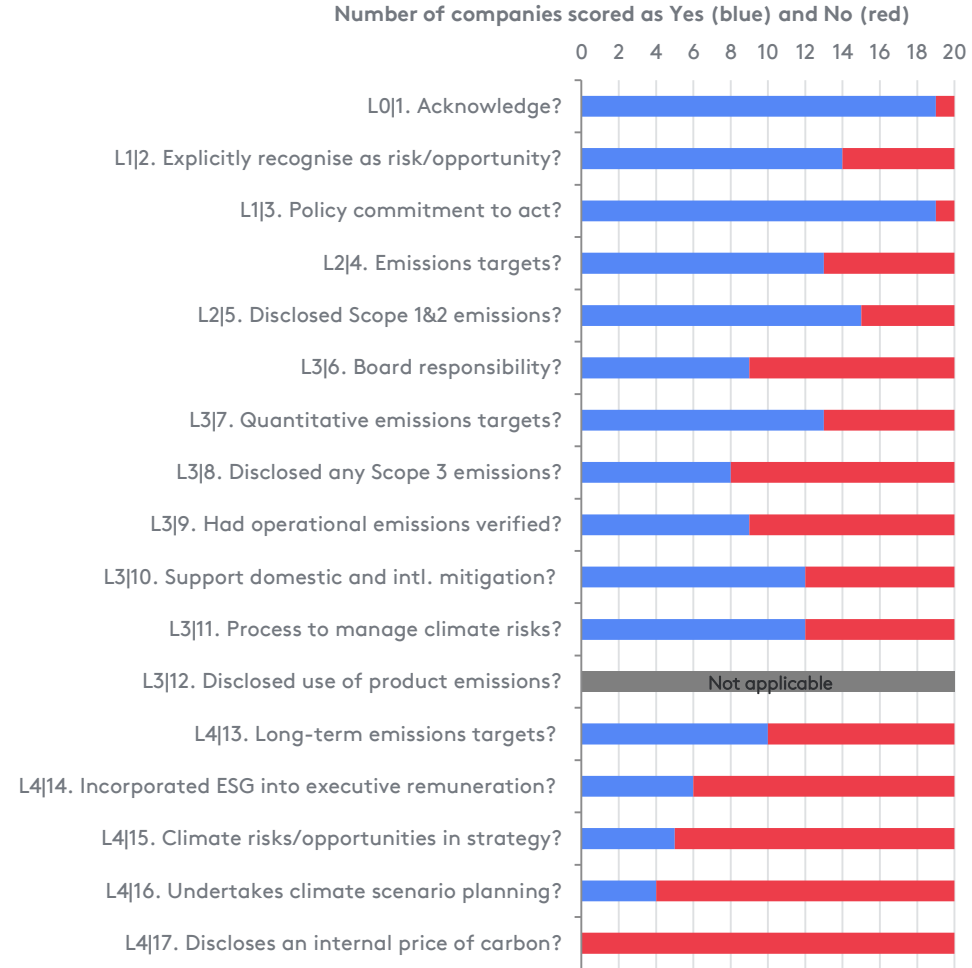
# Management Quality: indicator by indicator

Most airlines do the basics; fewer take the more advanced steps. We see this general pattern in all TPI sectors.

Two thirds of airlines have set quantified emissions targets, a larger share than average. Some other airlines have set fuel efficiency targets instead; these are not included here, but we do take them into account in our Carbon Performance assessment. Half of the airlines disclose some form of long-term, quantified emissions target (either including or excluding carbon offsetting).

Compared with all companies in the TPI database, relatively few airlines have incorporated ESG issues into executive remuneration, climate risks and opportunities in company strategy, or undertake and disclose climate scenario planning.

At the date of assessment, no airline had disclosed an internal carbon price. However, a few airlines have done so in their latest recent CDP responses.



# Results: Carbon Performance of Airlines

# Airlines' Carbon Performance versus the benchmarks

We benchmark airlines on the basis of CO<sub>2</sub> emissions intensity. We cannot yet account for non-CO<sub>2</sub> effects on warming.

Most large publicly owned airlines have a CO<sub>2</sub> emissions intensity that is below the TPI benchmarks at present. Up to 2020, this is set to remain the case. Three quarters of airlines have an emissions or fuel efficiency target for 2020 and most of those airlines will have a CO<sub>2</sub> emissions intensity below the benchmarks in 2020.

In the longer term, none of the 20 airlines provides a 2030 target that would clearly reduce its emissions from flight operations. Instead, many airlines use an industry-wide long-term target based on *net* emissions reductions, which relies on the purchase of carbon offsets from other sectors.

Top Carbon Performers are Easyjet and Alaska Air. Easyjet is the only airline with a CO<sub>2</sub> emissions intensity below the TPI 2C benchmarks after 2020. Wizz Air discloses a very low emissions intensity, but we are currently unable to verify it.

Company	Emissions intensity of flight operations (gCO <sub>2</sub> /passenger kilometre)						
	2014	2015	2016	2017	2020	2022	2025
Air China	111	112	111	107	108		
Alaska Air	94	93	91	91	87		
American Airlines	119	116	116	115			
ANA Group	137	134	132	128	133		
China Southern	114	112	112	108			
Delta	118	116	115	113	104		
Easyjet	82	81	80	79	75	72	
IAG	125	119	116	112	112		
IndiGo	No data						
Japan Airlines	140	132	134	134	125		
Jetblue	101	101	100	101	98		
Korean Air	188	181	175	171	172		
LATAM	108	104	100	96	102		
Lufthansa	127	126	126	120	107		
Qantas	104	101	101	98	89		
Singapore Airlines	138	138	141	136			
Southwest	102	99	98	97	98		
Turkish Airlines		109	119	110	107	106	104
United	107	106	104	104	92		
Wizz Air	No data						
2D (High Efficiency)	129	125	121	118	106	99	88
2D (Shift-Improve)	129	126	123	120	111	105	96
International Pledges	129	126	124	122	115	110	104
Key	Aligned with 2C (High Efficiency)		Aligned with 2C (Shift-Improve)		Aligned with Internat'l Pledges		Not aligned

# Key factors affecting flight emissions intensity

Factor	Effect
Age of fleet	Fuel efficiency of new commercial jet aircraft improved by around 10% between 2000 and 2014 (ICCT, 2015). Airlines that have invested in newer aircraft will have lower carbon emissions intensities than airlines with older fleets (other things equal).
Aircraft seat density/ passenger load factor	The greater the number of passengers transported on a flight, the lower will be the fuel burn and carbon emissions per passenger kilometre. Thus airlines with a high proportion of premium class seating or low passenger load factors will have poorer Carbon Performance than average. In contrast, low-cost carriers tend to have lower emissions intensity than full-service airlines.
Freight transported	TPI's measure of airline activity is passenger kilometres, which effectively allocates all carbon emissions to passenger transport rather than freight. Consequently, in our analysis, airlines with larger-than-average freight businesses will have relatively higher carbon intensities.
Mix of long haul and short haul operations	Fuel burn per passenger kilometre is determined by distance flown. The most fuel-intensive stages of a flight are landing and take-off. Thus, while the total fuel burn will be greater for long haul than for short haul, the fuel (and emissions) per passenger kilometre will be greater for short haul. As our analysis is based on an airline's total flight emissions per passenger kilometre, airlines with relatively more short haul operations may have relatively higher CO <sub>2</sub> intensities.

# Appendix

# Airline sector intensity benchmarks

For any sector, emissions intensity =  $\frac{\text{Emissions}}{\text{Activity}}$

## Emissions

For the airline sector, the measure of emissions used by TPI is 'Tank-to-Wheel' (TTW) CO<sub>2</sub> emissions from jet fuel combustion.

TTW emissions represent the majority (around 84%) of lifecycle emissions from jet fuel.

We calculate the sector's TTW emissions using IEA figures for final energy consumption from jet fuel and then applying the standard combustion emissions factor from the Intergovernmental Panel on Climate Change (IPCC) for jet kerosene.

In line with UN guidelines and industry practice, we assume TTW emissions from low-carbon alternative fuels (e.g. biofuels) are zero; that is, we assume that negative emissions upstream offset the emissions from combustion. In any case, these fuels represent only a small proportion of airlines' energy demand until 2030.

## Activity

For airlines, the measure of transport activity used by TPI is passenger kilometres – the number of passengers multiplied by the distance flown (PKs).

This is a widely used metric in the sector and the IEA's transport model also provides projections that can be used for benchmarking.

Passenger transport contributes around 90% of the total carbon emissions of the airline sector.

### Airline sector emissions intensity

Thus, the measure of emissions intensity used for airlines is:

***Tank to Wheel CO<sub>2</sub> emissions (from conventional jet fuel) in grams per passenger kilometre***

# Deriving each airline's emissions intensities

## Current and historic intensities

TPI calculates recent and current emissions intensities for an airline using its reported TTW emissions and passenger kilometres.

Airlines generally report their TTW (or 'flight only') emissions separately within Scope 1. These jet fuel emissions represent around 98% of an airline's total Scope 1 and 2 emissions.

## Future intensities

Most airlines have adopted an industry-wide target to improve fuel efficiency by an average of 1.5% per year to 2020. Where necessary, TPI uses this as a proxy for a carbon intensity target, applying the percentage to an airline's current emissions intensity, in order to estimate an intensity target for 2020.



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