TRAVEL REPORT

2015-12-01 – 2016-11-30

Stockholm Business Region

Issued by

TRICORONA

TRICORONA CLIMATE PARTNER

2016-12-08

In collaboration with

Via Egencia

TRICORONA
TRICORONA CLIMATE PARTNER

Climate Impact Report

Stockholm Business Region's Air Travel 151201-161130

Introduction

Tricorona has calculated the climate impact from Stockholm Business Region's air travel during 151201-161130, based on data supplied by Via Egencia.

Each flight has been calculated separately, using great circle distances between the specific airports, to take full account of take-off and landing cycles.

The calculations are based on NTM's calculation method and take account of all climate impact from the flight, including non-carbon emissions. To achieve this result, the carbon emissions at high altitude are multiplied by a factor of 2.7 to achieve a total figure expressed in terms of carbon dioxide equivalent (CO_2e).

For full details of the calculation methodology please see:
http://www.tricorona.se/tricorona-calculation-methodology-2015/

Summary Results

The total emissions from Stockholm Business Region's flights during the stated period are shown below. pkm means person kilometers, which is the total transported distance for all individuals. For carbon offsets the total emissions are rounded up to nearest whole number, giving 335 tons of carbon dioxide equivalents.

Category	Value	Unit
Total emissions	334,0	tonne CO_2e
Emissions/flight	582	kg CO_2e/flight
Emission/pkm	0,28	kg CO_2e/pkm
No. Flights	574	-
Total distance	1 203 681	pkm

Carbon offsetting

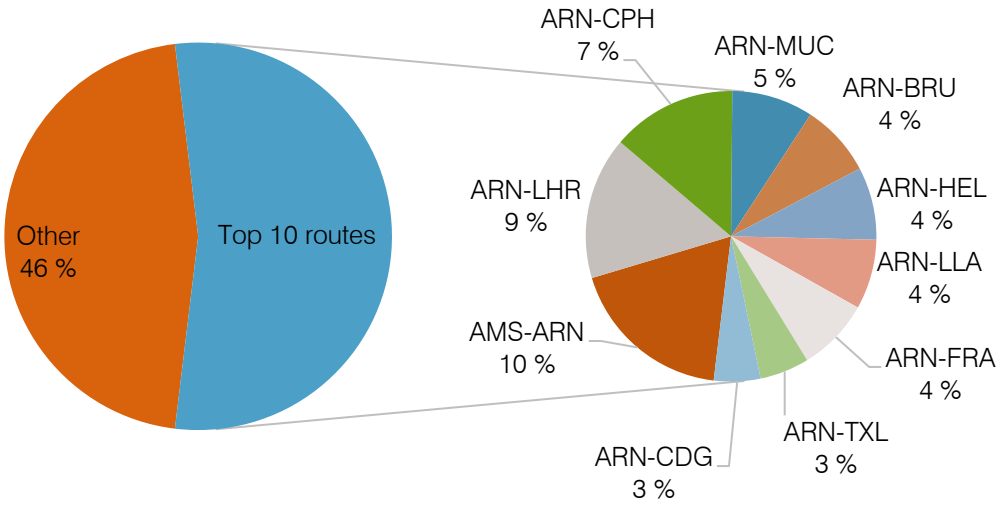
To carbon offset the total climate impact of the above travel, please contact your travel agency or Tricorona for further information.

Most commonly flown routes

Table: Top 10 routes by no. flights

Route	No. flights	% of all flights	Emissions/ flight (kg)	Total emissions (kg)	% of all emissions	Total distance (pkm)	% of all distance	Emissions /pkm (kg/pkm)
AMS-ARN	57	10 %	320	18 243	5 %	65 738	5 %	0,28
ARN-LHR	49	9 %	399	19 541	6 %	71 681	6 %	0,27
ARN-CPH	43	7 %	167	7 160	2 %	23 630	2 %	0,30
ARN-MUC	28	5 %	369	10 326	3 %	37 656	3 %	0,27
ARN-BRU	25	4 %	354	8 860	3 %	32 210	3 %	0,28
ARN-HEL	25	4 %	128	3 199	1 %	9 950	1 %	0,32
ARN-LLA	24	4 %	202	4 841	1 %	16 512	1 %	0,29
ARN-FRA	25	4 %	338	8 458	3 %	30 626	3 %	0,28
ARN-TXL	17	3 %	240	4 086	1 %	14 280	1 %	0,29
ARN-CDG	16	3 %	469	7 509	2 %	24 664	2 %	0,30
Other	265	46 %	913	241 825	72 %	876 736	73 %	0,28
Total	**574**	**100 %**	**582**	**334 049**	**100 %**	**1 203 681**	**100 %**	**0,28**

Share of total trips, sorted by most often flown routes

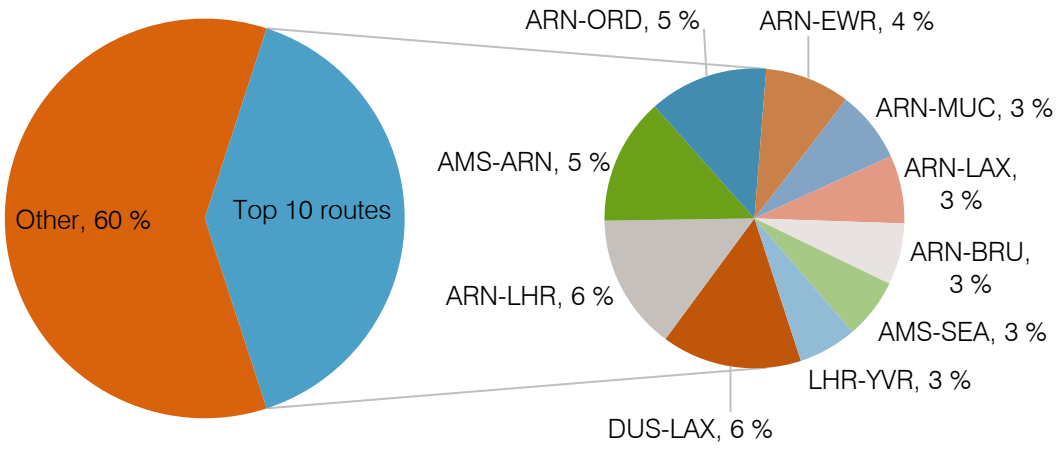


Highest contribution to total emissions

Table: Top 10 routes by emissions

Route	No. flights	% of all flights	Emissions/ flight (kg)	Total emissions (kg)	% of all emissions	Total distance (pkm)	% of all distance	Emissions /pkm (kg/pkm)
DUS-LAX	8	1 %	2 526	20 207	6 %	73 077	6 %	0,28
ARN-LHR	49	9 %	399	19 541	6 %	71 681	6 %	0,27
AMS-ARN	57	10 %	320	18 243	5 %	65 738	5 %	0,28
ARN-ORD	9	2 %	1 904	17 133	5 %	61 716	5 %	0,28
ARN-EWR	7	1 %	1 754	12 277	4 %	44 161	4 %	0,28
ARN-MUC	28	5 %	369	10 326	3 %	37 656	3 %	0,27
ARN-LAX	4	1 %	2 452	9 808	3 %	35 458	3 %	0,28
ARN-BRU	25	4 %	354	8 860	3 %	32 210	3 %	0,28
AMS-SEA	4	1 %	2 173	8 691	3 %	31 368	3 %	0,28
LHR-YVR	4	1 %	2 101	8 405	3 %	30 322	3 %	0,28
Other	379	66 %	529	200 559	60 %	720 295	60 %	0,28
Total	**574**	**100 %**	**582**	**334 049**	**100 %**	**1 203 681**	**100 %**	**0,28**

Share of emissions, sorted by total emissions per route

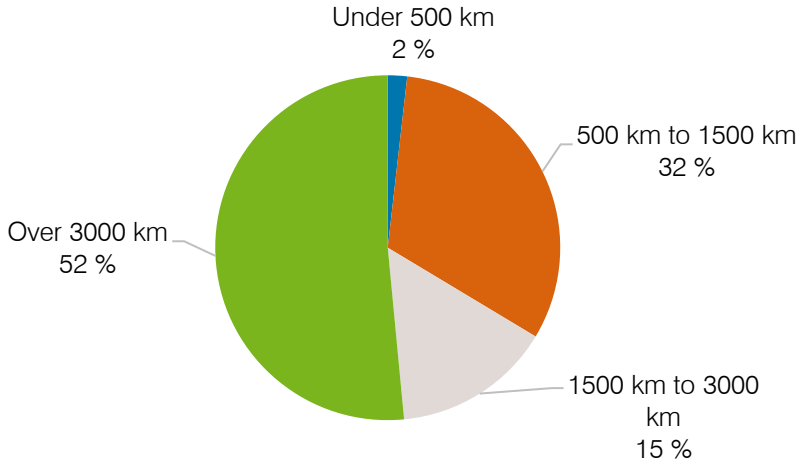


Distance category

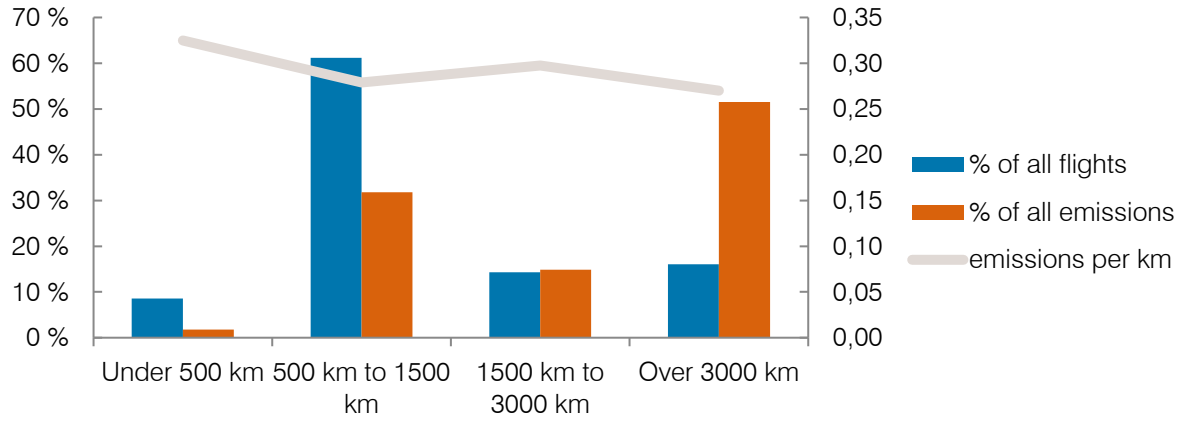
Table: Breakdown by distance category

Category	No. flights	% of all flights	Emissions/ flight (kg)	Total emissions (kg)	% of all emissions	Total distance (pkm)	% of all distance	Emissions /pkm (kg/pkm)
Under 500 km	49	9 %	123	6 037	2 %	18 586	2 %	0,32
500 km to 1500 km	351	61 %	303	106 237	32 %	380 806	32 %	0,28
1500 km to 3000 km	82	14 %	606	49 697	15 %	166 966	14 %	0,30
Over 3000 km	92	16 %	1 870	172 079	52 %	637 323	53 %	0,27
Total	**574**	**100 %**	**582**	**334 049**	**100 %**	**1 203 681**	**100 %**	**0,28**

Share of emissions by distance category



Share of flights and emissions, emissions per pkm, by distance category



Methodology

The climate impact calculations have been performed using the methodology developed for Tricorona, based primarily on data and methods developed by NTM, the Scandinavian Network for Transport and the Environment.

The NTM model calculates climate impact from direct carbon emissions only, and Tricorona has therefore corrected the resulting figures to account for climate impact arising due to high altitude. This is achieved by multiplying the calculated figures for carbon emissions by a factor of 2.7. The factor 2.7 is based on Tricorona's interpretation of IPCC research reports.

The per-passenger emissions are derived from the total flight emissions and assumptions about the seating configuration (passenger capacity) and cabin factor (load factor).

Full details of the calculation methodology are presented at
http://www.tricorona.se/tricorona-calculation-methodology-2015/

Where the customer / travel agency data does not specify the aircraft used, Tricorona calculates based on the aircraft specified in the table below. Assumptions for cabin factor are also specified below.

Table: Aircraft and cabin factor assumptions

Category	Distance	Aircraft	capacity	Cabin factor
Local	Under 1500 km	A320	160	70%
Regional	1500 km to 3000 km	B737-600	115	70%
Continental	3000 km to 6000 km	B737-800	173	70%
Intercontinental	Over 6000 km	B747-400-Belly	440	90%

Carbon offsetting

All projects offered by Tricorona for carbon offsetting are renewable energy or energy efficiency projects in developing countries. Tricorona offers two different categories of projects:

- CDM projects: these projects are projects certified by the UN under the Kyoto Protocol.

- Gold Standard CDM projects: these projects are, in addition to UN certification, also certified by the Gold Standard Foundation, an independent body backed by over 60 NGO's including WWF International and Greenpeace International.