

CALENDAR YEAR 2020

# Climate Audit

PAF



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CLIMATE PARTNER

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# Methods

## GHG Protocol

Tricorona Climate Partner AB (Tricorona) has, on behalf of Ålands Penningautomatförening (PAF) calculated the greenhouse gas emissions related to PAF's activities during 2020, stated in carbon dioxide equivalents (CO<sub>2</sub>e). The calculation includes emissions from travel and facilities.

The GHG Protocol is the most widely used international accounting standard for carbon calculations, and it is used by governments, companies and organizations as a tool to understand, quantify and manage greenhouse gas emissions. A company's or an organization's operational boundaries are set by three scopes within the GHG protocol standard. Calculations are carried out in accordance with Tricorona's standard calculation method, which follows the GHG Protocol guidelines for reporting and covers the following principles:

- Relevance: Reporting should reflect the company's or organization's emissions in an adequate manner so that it can support decision making for users both internally and externally.
- Completeness: Reporting should cover all emissions within the specified system boundary. Any exceptions should be described and explained.
- Consistency: The method of calculation should be consistent so that comparisons can be made over time. Changes in the data, system boundaries, methods or similar, should be documented.
- Transparency: All activity data, methods, sources and assumptions should be documented.
- Accuracy: The calculated emissions should be as close as possible to the actual emissions.
- The organizational boundaries, which determine the sources of emissions included in this climate audit, are based on PAF's organizational control. The greenhouse gas emissions from PAF's operations, including direct and indirect emissions are divided into three scopes according to the GHG Protocol: scope 1, direct emissions; scope 2, indirect emissions from purchased energy; and scope 3, indirect emissions.

## Scopes

Emissions included in the report are categorized as follows:

*Scope 1:* Emissions from transportation from cars, trucks and vans owned by PAF.

*Scope 2:* Emissions from district heating, cooling and electricity.

*Scope 3:* Indirect emissions caused by:

- Travel with airplanes, ferries, train, car and taxi
- Hotel stays
- Fuel and energy-related activities not included in scope 1 and 2

## Assumptions & updates

Information regarding heating of facilities are insufficient for some of the sites, Helsinki (Katajanokka Skatudden), Oslo and Malta in particular. The only information given about heating of these offices is the area. Hence, assumptions about kWh required to heat one square meter as well as fuel used for heating has been made.

Last year Tricorona updated the factor for air travel's climate impact on high altitudes. A trip that was previously stated to have a certain climate impact will now show a slightly lower amount of CO<sub>2</sub>e. This means that the result of the air travel's climate impact can be interpreted as the amount of travel has been reduced. Therefore, the climate impact from 2020 will only be compared to 2019.

Note regarding 2020 business trips. Not all business trips are included in the calculation as it has emerged that certain trips e.g., for service of vending machines on board ships, has been booked directly with the shipping companies (not via travel booking system). From 1 January 2021, these trips will be documented and included in next year's calculation. Taxi travels will also be included from next year.

Previous years travel by van or truck has been categorized as transportation. This year the transportation category has been included under travel. All reported data are travel even the ones by truck since its required for the trip, e.g. service of machines. Data form previous years categorized as transportation has been recategorized as travel.

# Results

## Summary

The emissions from PAF's activities in 2020 summed up to 371 tonnes CO<sub>2</sub>e.

Travel accounted for most of the total emissions, namely 70 percent. Moreover, travels by airplane caused the majority of the emissions from travel as well as most of the total emissions. Energy used for heating, cooling and electricity in facilities accounted to 30 percent of the total emissions. Figure 1 shows emissions divided by category.

Emissions per category (CO<sub>2</sub>e)

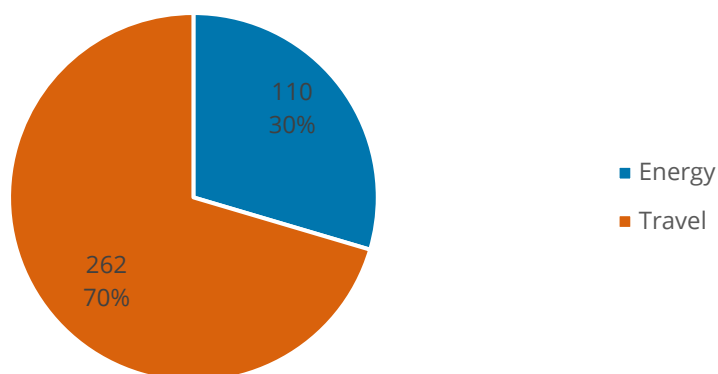


Figure 1. Emissions per category (tonnes CO<sub>2</sub>e) 2020.

Compared to 2019, the emissions caused by PAF's activities have decreased (-74 percent). Emissions from energy for facilities decreased since 2019 (-3 percent). The differences between 2019 and 2020 are shown in Figure 2 and Table 1. In 2020 Covid-19 has most likely had an effect on travel and would explain the large decrease in the travel category.

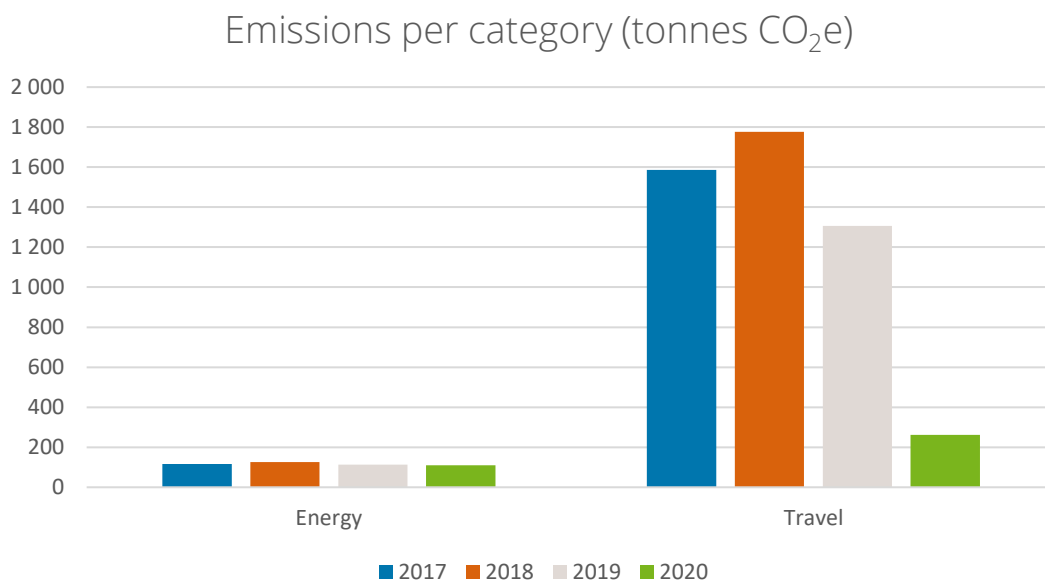


Figure 2. Emissions per category 2017- 2020 (tonnes CO<sub>2</sub>e). Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.

Table 1. Emissions per category 2017-2020 (tonnes CO<sub>2</sub>e).

Emissions per category (tonnes CO <sub>2</sub> e)	2017	2018	2019	2020	percentage change 2019-2020
Energy	117	126	114	110	-3%
Travel	1 586*	1 776*	1 306	262	-80%
<b>Total</b>	<b>1 702*</b>	<b>1 902*</b>	<b>1 420</b>	<b>371</b>	<b>-74%</b>

\* Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.

## Key Performance Indicators

The table below shows PAF's total emissions in relation to PAF's number of employees and turnover for 2017 to 2020. The emissions per MEUR decreased by 11,4 tonnes, while emissions per employee decreased by 2,9 tonnes. KPIs are presented in Table 2.

Table 2. Emissions per employee and MEUR 2017-2020 (CO<sub>2</sub>e)

KPI	2017	2018	2019	2020	percentage change 2019-2020
CO <sub>2</sub> e per employee	4,5*	4,9*	3,9	1,0	-74%
CO <sub>2</sub> e per MEUR	14,7*	17,1*	11,7	0,3	-97%

\* Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.

## Scopes

Figure 3 shows PAF's total emissions divided in scopes. Most of the emissions (67 percent) belong to scope 3 which includes the emissions from travel and thereby emissions from flights. Emissions from scope 2, which represent emissions from the energy used at PAF's facilities, account for 26 percent. Emissions in scope 1, which include travel by company owned or leased vehicles, accounts for the remaining 7 percent.

Emissions per scope (tonnes CO<sub>2</sub>e)

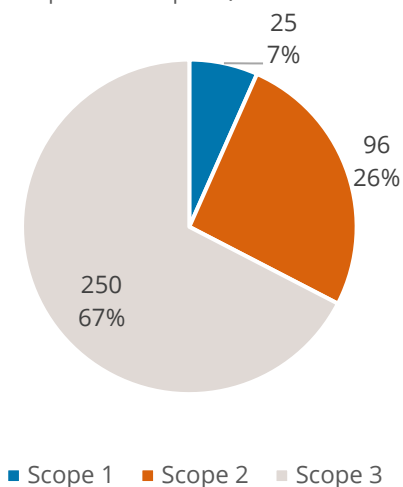


Figure 3. Emissions per scope (tonnes CO<sub>2</sub>e) 2020. Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.

Emissions per scope and year are shown in Figure 4 as well as in Table 3 below.

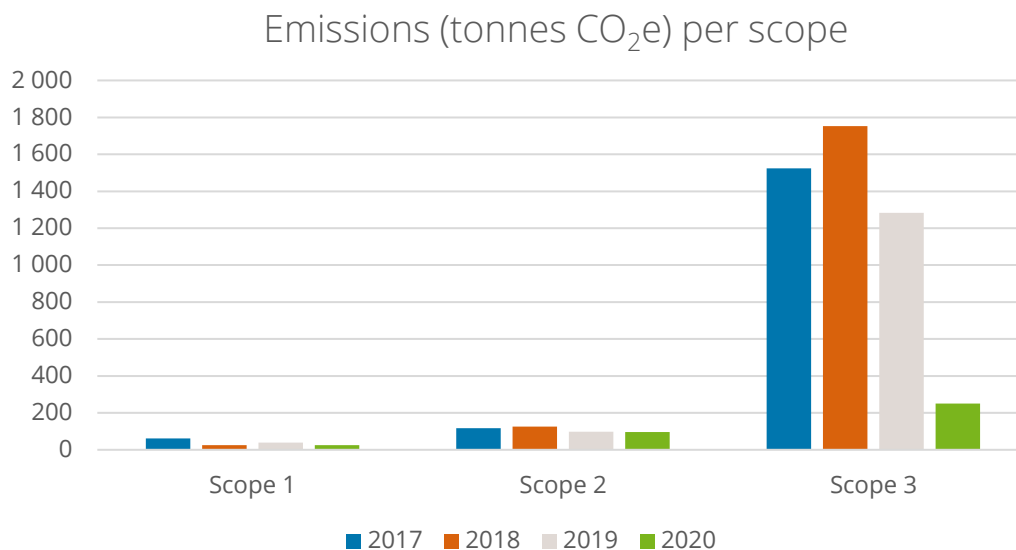


Figure 4. Emissions per scope 2017-2020 (tonnes CO<sub>2</sub>e). Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.

Table 3. Emissions per scope 2017-2020 (tonnes CO<sub>2</sub>e).

Tonnes CO <sub>2</sub> e per scope	2017	2018	2019	2020	percentage change 2019-2020
Scope 1	61	25	38	25	-36%
Scope 2	117	125	98	96	-2%
Scope 3	1 524*	1 752*	1 283	250	-80%
<b>Total</b>	<b>1 702*</b>	<b>1 902*</b>	<b>1 420</b>	<b>371</b>	<b>-74%</b>

\* Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.



## Energy

During 2020, emissions from heating, cooling and electricity for facilities amounted to 110 tonnes CO<sub>2</sub>e, which represents a decrease of 3 percent. Most of the emissions from energy was caused by heating (70 percent). The reported energy consumption, kWh, has decreased for heating (-21 percent) and decreased for electricity (-36 percent). In total this resulted in a decrease of 4 tonnes CO<sub>2</sub>e in emissions from energy compared to the previous year. Consumption of cooling decreased by -5 percent. The fact that emissions from electricity have increased despite that consumption has decreased is due to updated data, where the emissions from the residual mix in the Nordic countries have increased since last year and how calculations of energy consumption per square meter have been made. Where renewable energy is not specified, the residual mix is assumed. In 2020, the office in Malta has also been added where non-renewable energy is used, which affects the total emissions from energy.

Emissions from energy for facilities (tonnes CO<sub>2</sub>e)

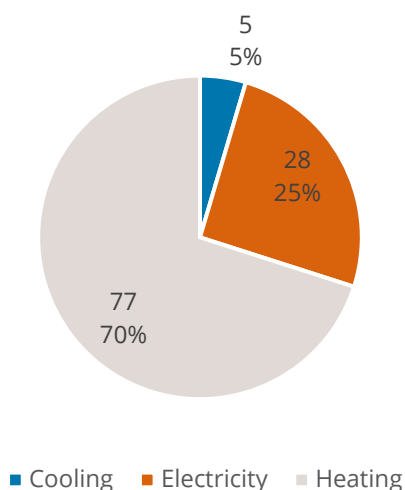


Figure 5. Emissions (tonnes CO<sub>2</sub>e) from energy use 2020.

Table 4. Emissions per energy type 2017-2020 (tonnes CO<sub>2</sub>e).

Emissions per type (tonnes CO <sub>2</sub> e)	2017	2018	2019	2020	percentage change 2019-2020
Cooling	3,6	4,6	5,0	5,0	0%
Electricity	16,8	35,1	23,3	28	20%
Heating	96,1	86,2	85,5	77,0	-10%
<b>Total</b>	<b>116,6</b>	<b>125,9</b>	<b>113,8</b>	<b>110,0</b>	<b>-3%</b>

Table 4 above shows the climate impact (tonnes CO<sub>2</sub>e) from energy use year 2017 to 2020 and Figure 6 below shows the amount of energy use in kWh per category and year.

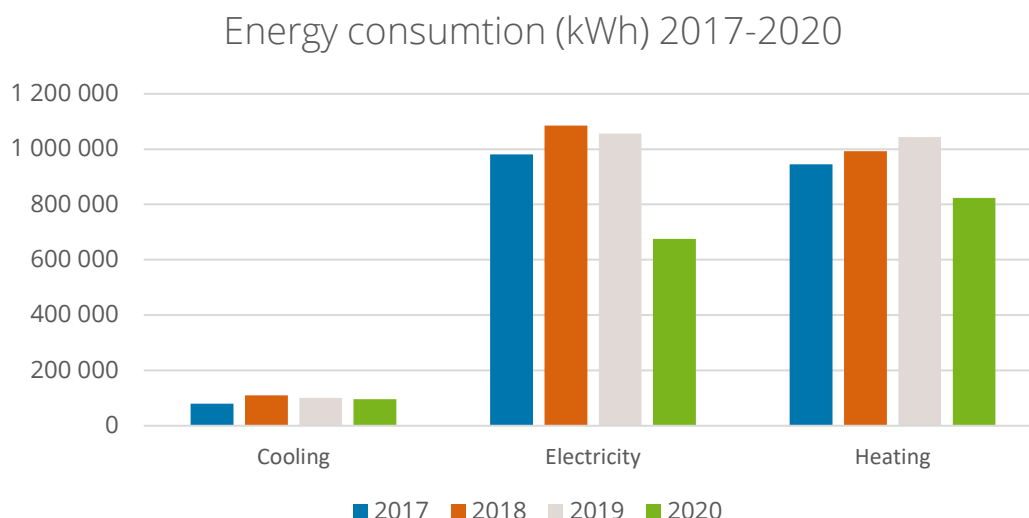


Figure 6. Energy consumption (kWh) 2017-2020.

## Energy per division

The office in Mariehamn consumes most energy of all PAF's reported facilities (59 percent), thereafter, the Helsinki Minkonkatu facility (24 percent).

Moreover, the Helsinki Minkonkatu facility has the highest emissions from electricity. For several locations (Katajanokka Skatudden, Oslo and Malta) assumptions regarding energy consumption as well as source of energy were required for the calculation, which causes uncertainty. Emissions per division and type of energy are shown in Figure 7.

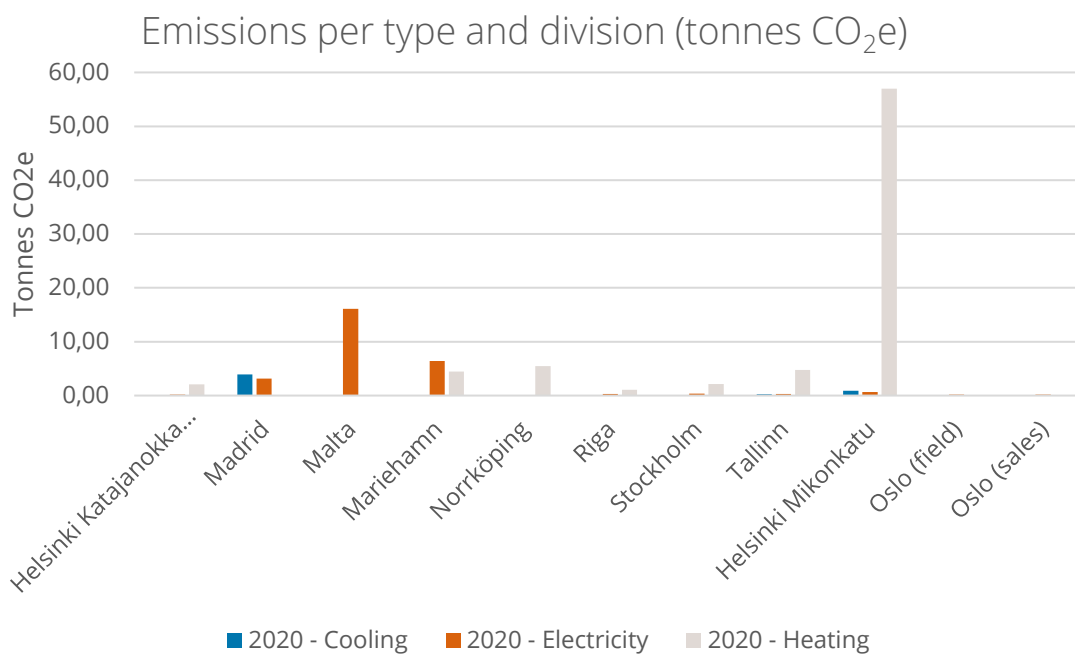


Figure 7. Emissions per type and division (tonnes CO<sub>2</sub>e) 2020.

Figure 8 shows energy consumption per division and Table 5 present emissions, energy consumptions as well as area.

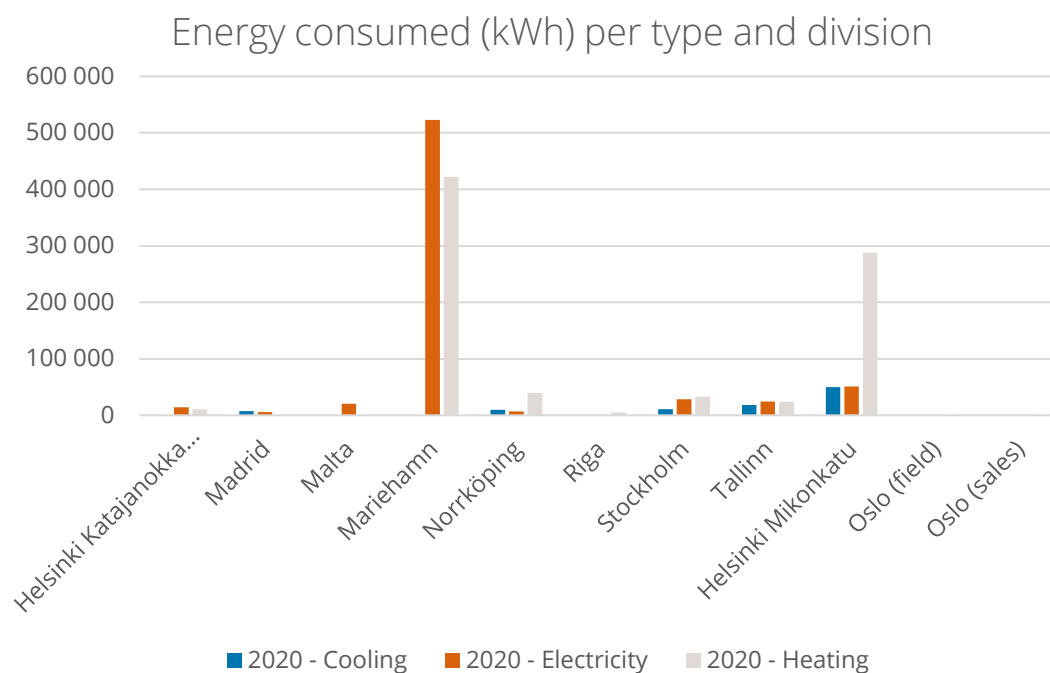


Figure 8. Energy (kWh) consumed per division 2020.

Table 5. Energy (kWh), emissions (tonnes CO<sub>2</sub>e), area (m<sup>2</sup>) and emissions per area (kg CO<sub>2</sub>e/m<sup>2</sup>) per division 2020.

Division	kWh	tonnes CO <sub>2</sub> e	m <sup>2</sup>	kg CO <sub>2</sub> e/ m <sup>2</sup>
Helsinki Minkonkatu	388 660	58,49	1 528	38,28
Helsinki Katajanokka	24 677*	2,27	95	23,89
Madrid	13 357	7,05	235	30,00
Mariehamn	944 931	10,87	7 636	1,42
Riga	5 744	1,32	59	22,39
Stockholm	71 784	2,49	313	7,95
Tallinn	66 478	5,28	310	17,04
Norrköping	56 541	5,55	278	19,95
Oslo Sales	1 591*	0,22	9	24,20
Oslo Fields	1 591*	0,22	9	24,20
Malta	20 689*	16,31	317	50,87
<b>Total</b>	<b>1 596 042</b>	<b>110</b>	<b>10 789</b>	<b>10,18</b>

\*The amount of electricity and/or heating used at the division is calculated using an average value of kWh per area (m<sup>2</sup>).

Heating accounts for most of the emissions from energy, mainly due to heat supplier's use of fossil fuels. To decrease emissions from facilities, Tricorona encourages PAF to, where possible, choose heat and electricity suppliers who guarantee no, or at least lower, consumptions of fossil fuels. PAF is also encouraged to request the exact amount of energy consumption from all the locations to get a more correct climate impact analysis from energy use.

# Travel

Travel accounts for 57 percent of PAF's total emissions, and within that group flights accounts for 80 percent of the emissions, 208 tonnes. Despite air travel, travel by van amounted for most of the emissions (8 percent), followed by hotel stays and bus travel (4 percent each), see Figure 9. For travel emissions divided by Club PAF and PAF see *Air* and *Hotel* below.

Emissions per category of travel (tonnes CO<sub>2</sub>e)

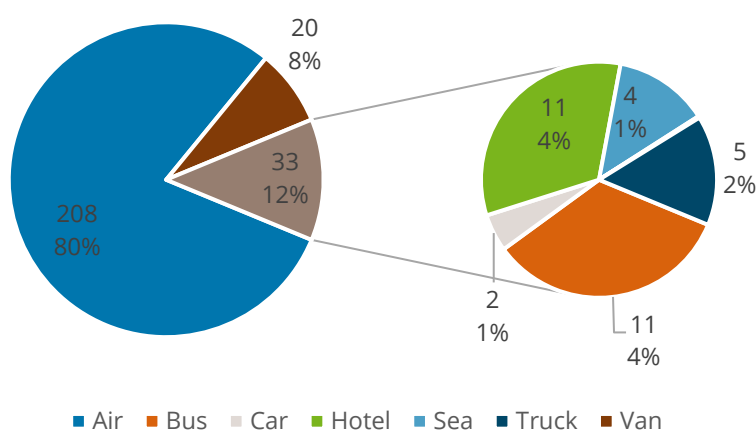


Figure 9. Emissions per category of travel (tonnes CO<sub>2</sub>e) 2020.

Figure 10, Table 6 and Table 7 below presents changes in PAF's travel between 2017, 2018, 2019 and 2020.

### Emissions per category of travel 2017-2020 (tonnes CO<sub>2</sub>e)

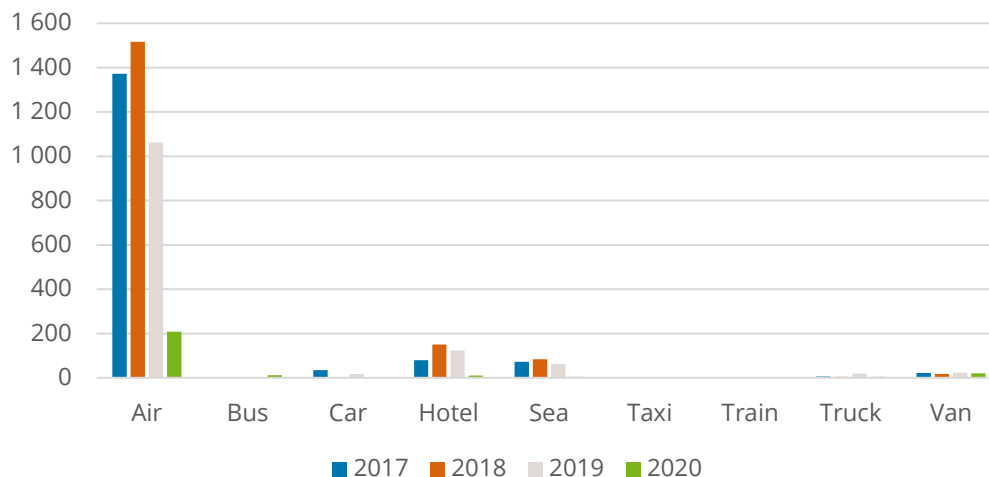


Figure 10. Emissions per category of travel 2017-2020 (tonnes CO<sub>2</sub>e). \*Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.

Table 6. Emissions per category of travel 2017-2020 (tonnes CO<sub>2</sub>e).

Emissions (tonnes CO <sub>2</sub> e)	2017	2018	2019	2020	percentage change 2019-2020
Air	1 373*	1 516*	1 061	208	-80%
Bus	-	-	-	11	-
Car	34	2,8	17	1,7	-90%
Hotel	80	151	123	11	-91%
Sea	72	84	63	4	-93%
Taxi	0,3	0,0	0,05	-	-100%
Train	0,0	0,13	0,24	0,07	-70%
Truck	5,8	4,7	19	5	-74%
Van	21	18	23	20	-12%
<b>Total</b>	<b>1 586*</b>	<b>1 776*</b>	<b>1 306</b>	<b>262</b>	<b>-80%</b>

\*Air travel 2017 and 2018 are calculated with the previous method and can therefore not be fully compared to the results of 2019 and 2020.

Covid-19 has meant that travel globally has decreased sharply, which is probably the main reason why PAFs travel also has decreased. It is still important that PAF works to reduce emissions from travel by choosing online meetings over physical meetings as much as possible together with other initiatives to keep the traveling down even after Covid-19. Furthermore, Tricorona recommends PAF to choose transportation with renewable fuels.

Table 7. Distances per type of travel 2017-2020.

Distance (km)	2017	2018	2019	2020	percentage change 2019-2020
Air	4 885 904	5 337 218	3 715 047	997 239	-73%
Bus	-	-	-	11 839	-
Car	52 821	17 132	101 486	11 092	-89%
Sea	421 665	494 310	368 765	21 995	-94%
Taxi	1 939				-
Train	22 855	16 445	37 284	8 544	-77%
Truck	29 488	23 587	34 628	9 698	-72%
Van	134 078	111 208	116 295	84 292	-28%
<b>Total</b>	<b>5 548 750</b>	<b>5 999 899</b>	<b>4 373 504</b>	<b>1 144 699</b>	<b>-97%</b>

The total distanced travelled 2020 was shorter than 2019. Air travel stood for the greatest decrease of distance followed by sea travel. None of the parameters has increased except for bus that was not represented previous years. On average, air travel causes higher emissions than sea travel per km. Though, one should be aware of that the emissions per km depends on several factors, such as the distance of the flight, the size and speed of the ferry. Moreover, there are uncertainties about emission factors for ferries due to insufficient data about emissions from sea travel.

## Air travel

The number of flights flown 2020 was 629, 2 490 less flights than 2019. The most frequently flown route was Stockholm–Mariehamn followed by Helsinki–Mariehamn and thereafter Stockholm–New York. Accordingly, most of the flights were shorter than 500 km. Table 9 shows information about the total amount of routes flown ordered by the routes accumulated emissions during 2020.

Air travel per division (Club PAF and PAF) is presented in Figure 11 below. Club PAF is responsible for 53 percent of the total emissions from air travel. Table 8 present distances and emissions from PAF's air travel 2020 divided for Club PAF and PAF. Table 10 and 11 shows information about flights divided by distances for Club PAF and PAF. Even though PAF has almost six times the amount of flights compared to Club PAF, Club PAF has the highest CO<sub>2</sub>e-emissions since those flights are in the longest distance category (over 3 000 km) while 74 percent of PAF's flights are shorter than 500 km.

## Emissions (tonnes CO<sub>2</sub>e) from air travel per division

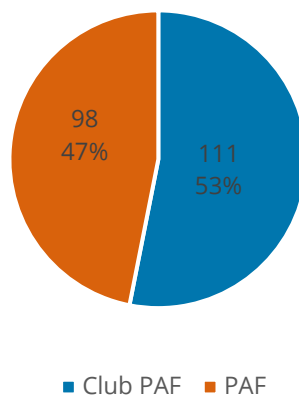


Figure 11. Emissions from air travel per division (tonnes CO<sub>2</sub>e) 2020.

Table 8. Summary of emissions and distances of air travel per division 2020.

Division	Category	Value	Unit
Club PAF	Total emissions	111	tonnes CO <sub>2</sub> e
	Emissions/flight	1 258	kg CO <sub>2</sub> e/flight
	Emission/pkm	0,2	kg CO <sub>2</sub> e/pkm
	No. Flights	88	-
	Total distance	553 789	pkm
PAF	Total emissions	97,7	tonnes CO <sub>2</sub> e
	Emissions/flight	181	kg CO <sub>2</sub> e/flight
	Emission/pkm	0,2	kg CO <sub>2</sub> e/pkm
	No. Flights	541	-
	Total distance	443 450	pkm



Table 9. Top 10 routes flown (both Club PAF and PAF) ordered by accumulated emissions (kg CO<sub>2</sub>e) 2020.

Route	No. flights	Percent of all flights	Emissions/ flight (kg)	Percent of all emissions	Total distance (pkm)	Emissions /pkm (kg/pkm)
ARN-MHQ	182	28,9%	57	4,9%	21 937	0,470
HEL-MHQ	135	21,5%	84	5,4%	38 013	0,298
ARN-NYC	88	14,0%	1 258	53,1%	553 789	0,200
ARN-LHR	56	8,9%	284	7,6%	81 921	0,194
ARN-HEL	46	7,3%	104	2,3%	18 308	0,260
ARN-RIX	18	2,9%	114	1,0%	8 306	0,248
ARN-MLA	15	2,4%	489	3,5%	39 895	0,184
HEL-LHR	14	2,2%	350	2,4%	25 869	0,189
ARN-MAD	8	1,3%	479	1,8%	20 814	0,184
MHQ-TLL	7	1,1%	85	0,3%	2 008	0,296
Other	60	9,5%	612	17,6%	186 379	0,197
<b>Total</b>	<b>629</b>	<b>100,0%</b>	<b>331</b>	<b>100,0%</b>	<b>997 239</b>	<b>0,209</b>

Table 10. Air travel per distance category for Club PAF 2020.

Category	No. flights	percent of all flights	Emissions/ flight (kg)	Total emissions (kg)	percent of all emissions	Total distance (pkm)	% of all distance
Under 500 km	0	0,0%	-	0	0,0%	0	0,0%
500 to 1500 km	0	0,0%	-	0	0,0%	0	0,0%
1500 to 3000 km	0	0,0%	-	0	0,0%	0	0,0%
Over 3000 km	88	100%	1 258	110 701	100%	553 789	0,0%
<b>Total</b>	<b>88</b>	<b>100%</b>	<b>1 258</b>	<b>110 701</b>	<b>100%</b>	<b>553 789</b>	<b>100%</b>

Table 11. Air travel per distance category for PAF 2020.

Category	No. flights	percent of all flights	Emissions/ flight (kg)	Total emissions (kg)	percent of all emissions	Total distance (pkm)	% of all distance
Under 500 km	399	73,8%	75	29 980	30,7%	91 704	20,7%
500 to 1500 km	71	13,1%	274	19 422	19,9%	99 403	22,4%
1500 to 3000 km	57	10,5%	417	23 761	24,3%	127 643	28,8%
Over 3000 km	14	2,6%	1755	24 573	25,1%	124 700	28,1%
<b>Total</b>	<b>541</b>	<b>100%</b>	<b>181</b>	<b>97 736</b>	<b>100%</b>	<b>443 450</b>	<b>100%</b>

PAF decreased the number of flights from 3 119 flights 2019 to 629 during 2020, which lowered the climate impact of PAF's business travel as well as of the company in total. The most commonly flown distance was less than 500 km which is due to a high number of flights between Mariehamn and Helsinki and Stockholm. Since sea travel is better but far from good from a climatic point of view, Tricorona recommends PAF to as far as possible have online meetings instead of travel between these cities and if necessary, travel by ferry. Moreover, Club PAF had several long-distance routes which together amounts to more than half of the emissions from air travel. Due to the distance, these flights may also be difficult to replace with trains. Therefore, Tricorona recommends PAF to consider the necessity of these flights as well.

## Hotel

The emissions from hotel stays are divided by division (Club PAF and PAF) in Figure 12 below. Table 12 shows the division between nights in environmentally certified hotels and non-environmentally certified hotels. However, this has no effect on the calculated emissions from the hotel stay as all hotels have been calculated in the same way. Certifications can differ in what they cover. The calculation is therefore based on and becomes more robust if they are based on land instead of certification.

Emissions from hotel stays per division

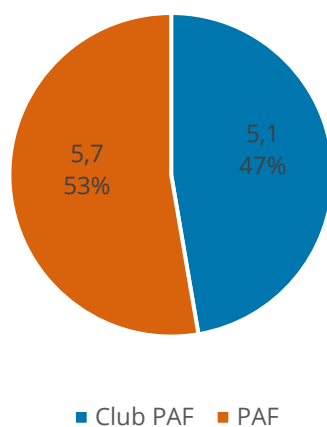


Figure 12. Emissions from hotel stays per division (tonnes CO<sub>2</sub>e) 2020.

Table 12. Number of hotel stays per division 2018-2020.

Division	2018	2019	2020	percentage change 2019-2020
<b>Club PAF</b>	<b>3501</b>	<b>2217</b>	<b>237</b>	<b>-89 %</b>
environmental certification	1522	690	237	-66 %
non-certified	1979	1527	-	-100 %
<b>PAF</b>	<b>1795</b>	<b>1735</b>	<b>361</b>	<b>-79 %</b>
environmental certification	1269	1039	236	-77 %
non-certified	526	696	125	-82 %
<b>Total</b>	<b>5296</b>	<b>3952</b>	<b>598</b>	<b>-85 %</b>

# Reliability

Tricorona has classified the results per the quality of data. The evaluation classifies data based on whether they are measurements, qualified estimations or modelled averages. Measured values (1) have high reliability. Qualified estimations (2) provide results which can be used as a basis for general decision-making. Modelled averages (3) serves as indicators and can be used to follow development over time. Figure 16 below shows the percentage of emissions that derive from each of the reliability categories.

Most of the reported data *not* classified as level 1 are within travel and energy. Several of the divisions did not state which the heat- or electricity supplier was. Furthermore, some of the heat suppliers did not present sufficient information about their emissions and fuels. Energy consumption in terms of kWh is also requested.

Level of confidence

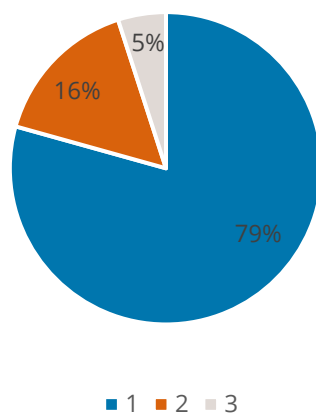


Figure 13. Level of confidence