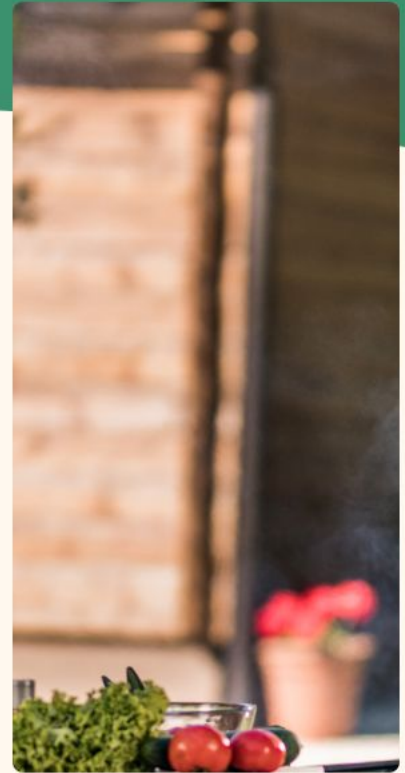


A carbon impact study

on the impact of home exchange and travel



Presented by

h·me
exchange & **OUIACT.**

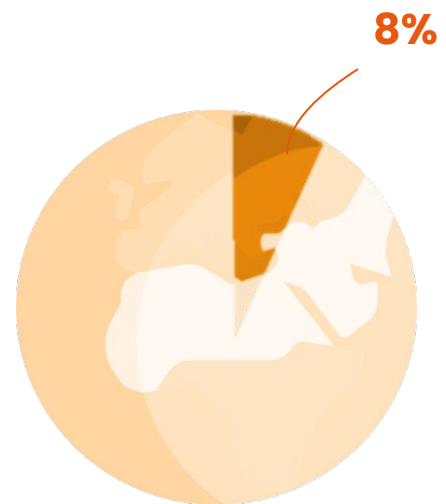
Foreword

The tourism sector is responsible for 8%* of global greenhouse gas emissions.

For 10 years, we have been committed, along with our members, to encouraging a more circular tourism. Since 2020, we have been measuring our carbon footprint in an effort to understand our carbon contributions. As a certified B-Corp since 2022, at HomeExchange we believe that traveling more consciously and responsibly is a necessity.

What impact do vacations have on the environment? How are our members traveling? What measures could be put in place to minimize the carbon emissions of our exchange community and of other travelers?

We wanted to find answers to these questions by conducting an impact study with our partner, OuiACT. After several months of investigation, data collection and analysis, we are now in a position to present a comprehensive report of what we have learned.



Above all, our goal is to encourage reflection within the tourism sector. We are convinced that in order to do better, we must first, as a company, gather information on our community's behavior and demonstrate transparency in order to find solutions and choose the areas of development for a more sustainable future.

The results of this study will be made publicly available and we appeal to our peers, tourism companies, communities, and associations to join our mission.

* according to a study across 160 countries, published in 2018 in the scientific journal *Nature Climate Change*

01. Methodology

02. HomeExchange Behaviors

**03. The Main Sources of Carbon Emissions
in Tourism**

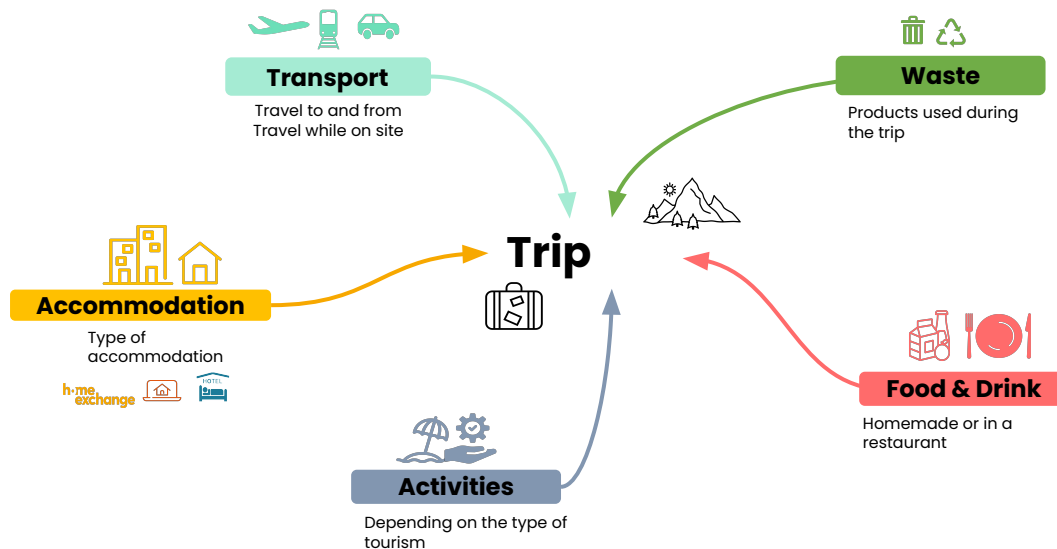
04. Conclusion

01.

Methodology

Mapping the emission sources considered in this study

Step One



In order to understand the carbon impact of vacations, we started by defining the emission streams that were going to take into account. We selected the five streams represented in the graph above to cover all of a trip's possible emissions.

In order to measure the impact of the five main emission streams from tourism, three types of data were used:

- **Data from the ADEME** (The French Agency for Ecological Transition) carbon database. This resource, valuable and one of a kind in France, and in the world, has supplied our study with numerous CO₂ emission factors and key monetary figures.
- **Data collected from users of the HomeExchange service** through: one questionnaire concerning vacation behaviors, in particular activities and food, which had more than 10,000 respondents; and a survey, where 3,400 responses were analyzed concerning our community's modes of transportation.
- **Assumptions made when data was not available.** This was the case for certain monetary figures and emission factors, or for the quantities of waste produced in a Hotel or Holiday Club.

Measuring each source

Step Two



Transport

Using an online questionnaire sent out to our members upon the conclusion of an exchange, we calculated transportation emissions. We collected data on the mode of transport used, which we matched with the distance traveled, as well as with the CO₂ emitted by each mode of transport using data available on ADEME.



Accommodation

To calculate emissions from accommodation, we classified HomeExchange accommodation as non-commercial and also took into account whether the accommodation was a primary or secondary residence. We then matched this data with the available emissions data on ADEME.



Activities

Regarding activity-related emissions, we used the monetary figures proposed by ADEME in its carbon database, which we then multiplied by the amount spent per day and per activity, as declared by our 10,000+ respondents on our questionnaire.



Food & Drink

For food and drink, we used data collected through our questionnaire and on the basis of 14 meals per week. We then linked this data with the emission factors provided by ADEME.



Waste

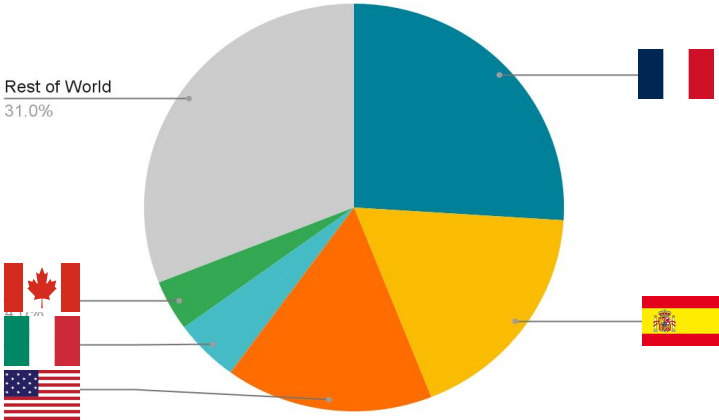
To calculate waste emissions, we used ADEME's data which states that a French person emits on average 1.59 kg of waste per day, or 0.72 kg CO₂ per day

Respondent profiles and internal data

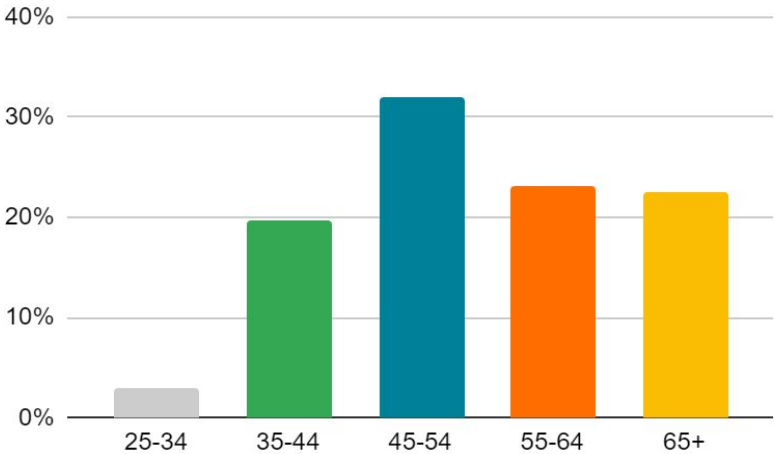
For the purposes of the study, we collected and analyzed data from over 13,000 HomeExchange members.

+ 10,000 respondents
to the questionnaire on their behavior during HomeExchange exchanges

+ 3,400 responses
from an online survey to determine the mode of transport used for each exchange



→ **France, USA, and Spain represent 60%** of the responses received



→ **Over 45 year olds** represent more than **75%** of our respondents

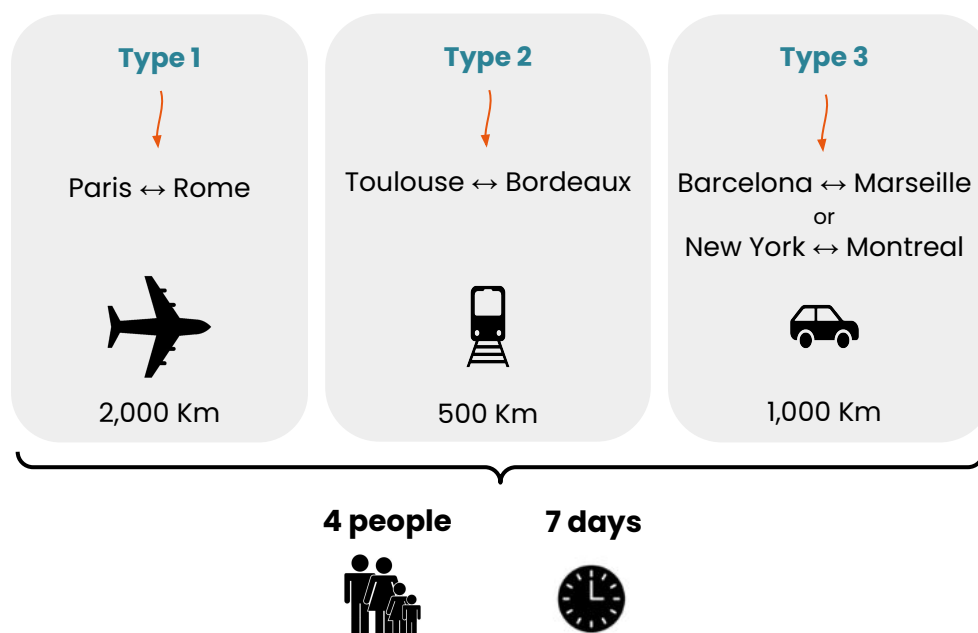
Defining three trip types

Step Three

We then defined **three types of trips** to analyze the impact of each emission source. We defined these three types based on travel patterns that are representative of our community and also the sector in terms of distance, mode of transport, duration, and the number of people traveling.

We therefore chose to study the following three trip types:

We considered a trip of a group of four people. This is necessary for car trips since the car emission factors are given for one vehicle. However, the overall CO2 impact results are given for just one person during a trip.



Comparing emission sources

Step Four

Once we had defined these trip types, we were able to compare the impact of the different emission sources, in order to determine the measures needed to reduce CO2 emissions during a trip.

1. Impact by trip type

First, we compared the impact of emission sources for each trip type while using a home exchange as accommodation. This allowed us to understand the impact of the mode of transport, as well as travel distance. The figures below show some of the key results.

Mode de séjour	Home Exchange Hypothèse 1	Home Exchange Hypothèse 2	Home Exchange Hypothèse 3
Durée du séjour	7 jours	7 jours	7 jours
Distance AIR	2 000	500	1 000
Mode de déplacement	Avion	Train	Voiture, 4 voyageurs
Émissions de transport	375 kg CO2e	3 kg CO2e	54 kg CO2e
Émissions de l'hébergement	24,6 kg CO2e	24,6 kg CO2e	24,6 kg CO2e
Émissions des activités	112,2 kg CO2e	112,2 kg CO2e	112,2 kg CO2e
Émissions de l'alimentation	34,57 kg CO2e	34,57 kg CO2e	34,57 kg CO2e
Émissions des déchets	5,1 kg CO2e	5,1 kg CO2e	5,1 kg CO2e
TOTAL	551 kg CO2e	179 kg CO2e	231 kg CO2e
TOTAL / JOUR	79 kg CO2e	26 kg CO2e	33 kg CO2e

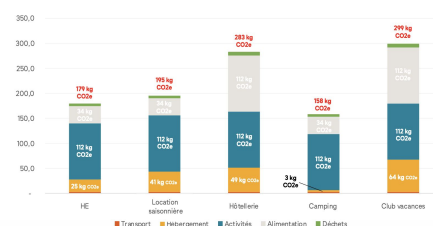


■ Waste ■ Food & Drink ■ Activities
■ Accommodation ■ Transportation

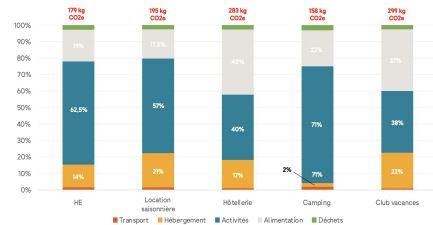
2. Impact by accommodation type

For each trip type, we then compared the impact of each emission source for each of the identified accommodation type, i.e., for home exchanges, vacation rentals, hotels, camping, and holiday clubs. Here are some of the results.

Mode de séjour	Home Exchange	Location saisonnière	Hôtellerie	Camping	Club vacances
900 km, en Train, sur 7 jours					
TOTAL	179 kg CO2e	195 kg CO2e	283 kg CO2e	158 kg CO2e	299 kg CO2e
TOTAL / JOUR	26 kg CO2e	28 kg CO2e	40 kg CO2e	23 kg CO2e	43 kg CO2e



Mode de séjour	Home Exchange	Location saisonnière	Hôtellerie	Camping	Club vacances
900 km, en Train, sur 7 jours					
TOTAL	179 kg CO2e	195 kg CO2e	283 kg CO2e	158 kg CO2e	299 kg CO2e
TOTAL / JOUR	26 kg CO2e	28 kg CO2e	40 kg CO2e	23 kg CO2e	43 kg CO2e



02.

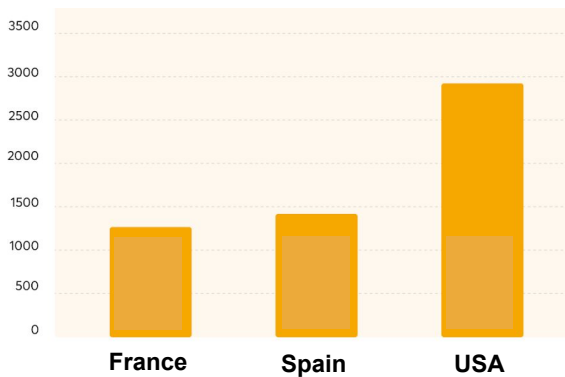
**HomeExchange
Behaviors**

Transportation

The average distance traveled by our members varies by country

Europeans tend to travel less far than **North Americans**.

Average travel distance (one way, km)



Air travel is used more for long distances, so carbon footprint is strongly impacted by the **distance traveled**. The size of the country has a significant impact on the distance traveled by travelers on their vacations, and it is likely that it will be more difficult to reduce the distance traveled in countries such as Canada and the United States.



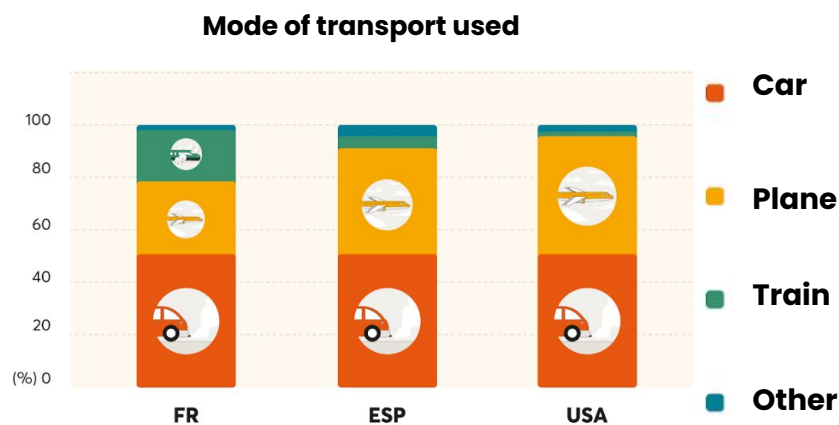
Transportation

While the modes of transport differ by country, planes and cars remain on top

It is clear that in the countries where distance traveled is the highest (Canada and the United States), air travel is the most popular mode of transport for our members.

Globally, **the family car is the primary mode of transportation used by our members to get to their exchange accommodation**, with 40% of exchanges involving a trip by car (whether with family, friends, or alone).

In France and in the USA, this mode of transport is involved in nearly 50% of our exchanges. This is due to the fact that it is a particularly practical mode of transport for our community, as nearly 50% of them are families with children. Therefore, it may require the use of a car to get to areas that are not necessarily touristy and where accessibility is limited.



Transportation

45% of our members' trips emit 88% of transportation-related emissions*

To understand the impact of different modes of transport, we compared the number of trips by each mode of transport and their emissions.

We realized that, across our community, **45% of our members' trips emit nearly 88% of our emissions.**

These differences are more or less significant depending on the country.

- **France** → **25%** of trips = **86%** of emissions
- **USA** → **45%** of trips = **79%** of emissions

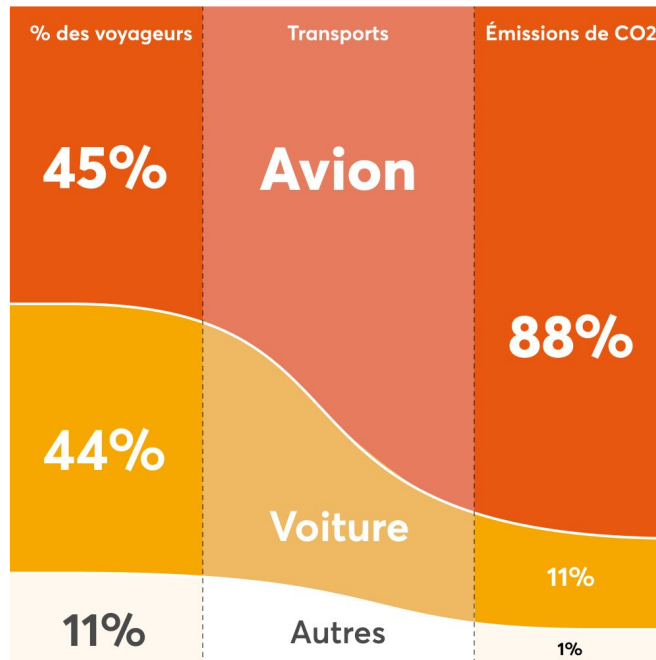


Figure 1 - comparison of the number of trips and their emissions by the mode of transportation

* Source : Study of 3,361 responses to a questionnaire collecting our community's transportation habits since June 2022

Activities

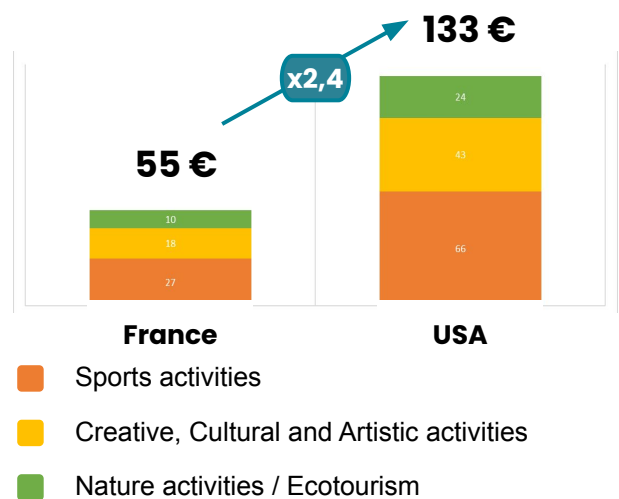
The budget allocated to activities varies greatly depending on the region

The study found that **our members spent an average of €73.59/day on activities**, far more than we would have expected. This figure is driven by Americans, who spend nearly twice as much as Europeans, with an average of €58 on sports activities, €40 on cultural activities, and €23 on nature activities, whereas the average figures outside the USA are €32, €22, and €12 respectively.

However, **the distribution of the budget by type of activity is similar** between the two.

Finally, the fact that some countries have more vacations than others can also impact average spend. An activity in one country can also be more expensive than a similar activity in another.

Expenditure by type of activity* (€ / day)



**However, it is not possible to determine the carbon footprints by region since the monetary figures [kgCO₂e/€ spent] are only available for France from ADEME.*

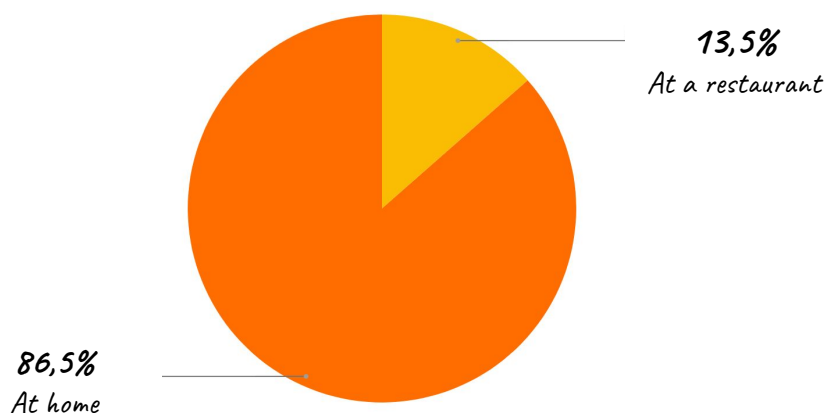


Food & Drink

~86.5% of home exchangers' meals are eaten in their accommodations.

The questionnaire shows that **our members do not change their eating out habits during a home exchange stay.**

Furthermore, **82%** of HomeExchange members do not increase their meat consumption during their home exchange vacations.



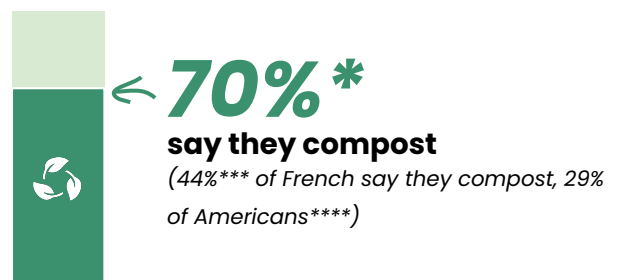
Waste

Staying in an exchanged accommodation encourages minimal wastage during vacations

90% of the respondents declared that they sort waste during their home exchanges and 70% declared that they compost. These figures can be explained by the **availability of facilities** in our community's accommodations, as well as by **the awareness raised by our hosts to their guests**, notably through their welcome guides.

Since we do not have access to precise data on the amount of waste produced in hotels and holiday clubs, we hypothesized that it would be **50% higher** than the waste produced by travelers who have their own accommodation (home exchange or rental).

Although more and more hoteliers are implementing a waste reduction policy, the use of disposable products, mass catering, and the favored behaviors of these places are all factors that generate significant levels of waste.



03.

**The Main Sources of
Carbon Emissions in
Tourism**

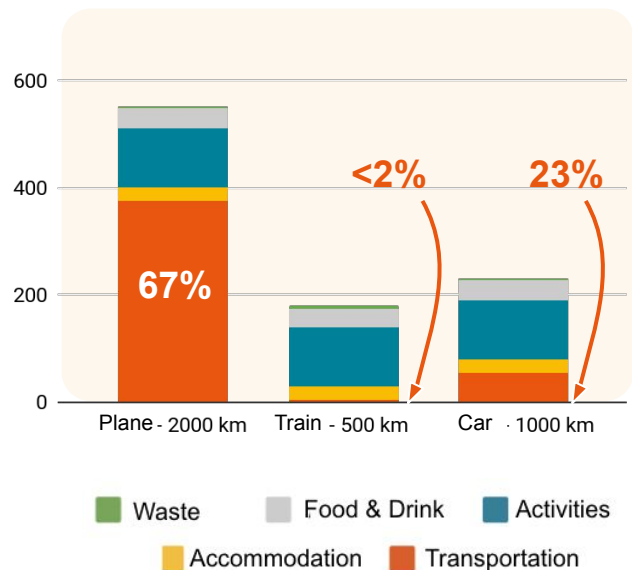
Transportation

Transportation: the main source, representing up to 71% of GHG emissions

In terms of the carbon footprint of travel, **the first priority must be to decarbonize travel**, because air travel, for example, has a higher level of emissions than all modes of accommodation combined.

If air travel is the mode of transport used, then the effect of transportation on the total impact of the trip varies between 56% and 71% for a round trip of about 2,000 km. On the other hand, for a 500 km round trip by train, transport emissions represent only 2% of the total emissions of the trip.

Breakdown of trip emissions by emission source (%)
(if accommodation is a home exchange)



Activities

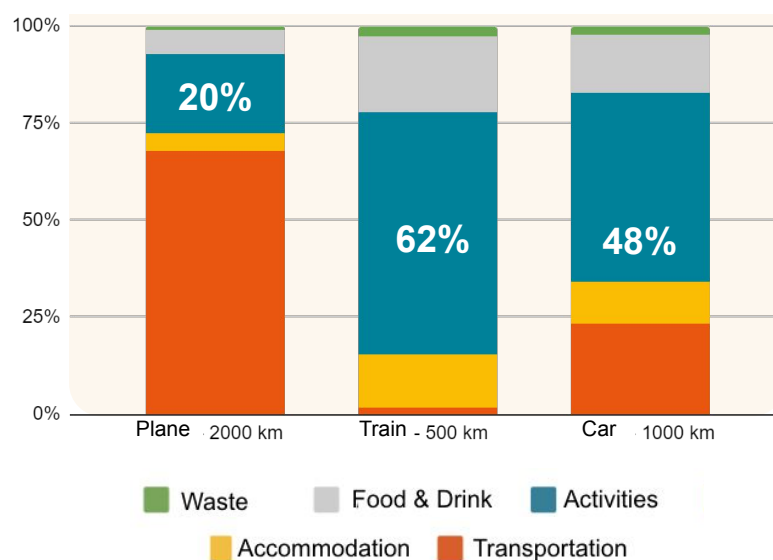
Activities represent between 20% and 62%* of emissions

Activities represent a significant amount of emissions (30% of emissions on average), particularly for trips by train, for which the impact of transportation is less.

In the case of air travel and accommodation in a holiday club, activities represent only 17% of the emissions. On the other hand, in the case of a train trip and tented accommodation in a campsite, activities represent up to 71% of the trip's emissions.

Educating our members to choose more responsible activities is an important measure for reducing emissions. We believe that we have a responsibility to inspire our members, **promote low-carbon activities**, highlight local initiatives, and build a community that is more engaged, responsible, and aligned with our values.

Breakdown of trip emissions by emission source (%)
(accommodation mode: home exchange)



* Calculations made using the ADEME carbon database. Assumptions have been made for emissions from nature / ecotourism activities

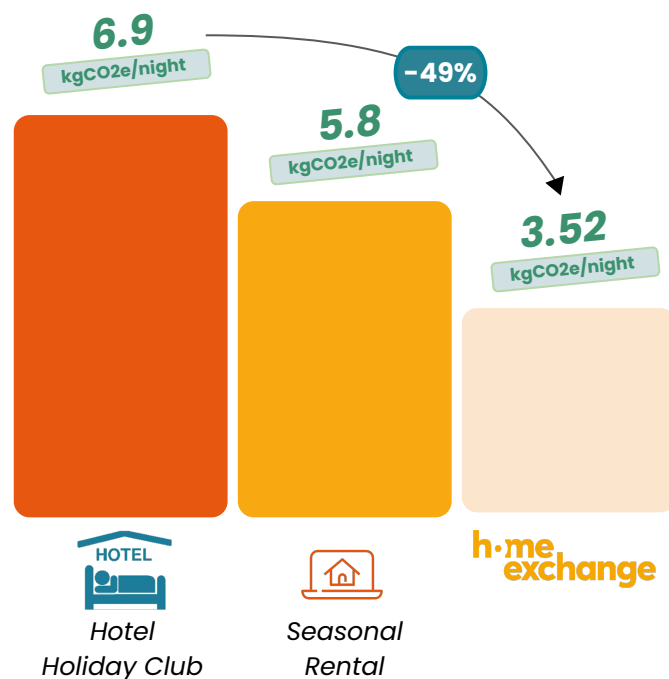
Accommodation

One night in a home exchange results in 2x less emissions than a night in a hotel

In the case of a trip by train or by car (with 4 people in the car), we can see that, after the activities carried out during the trip, **carbon footprint can be reduced depending on the type of accommodation used.** Here, home exchanges came out on top when compared. Although camping is also low carbon-emitting, it does not offer the same level of comfort, which makes it difficult to compare on the same level.

According to our estimates, **one night in a home exchange emits an average of 3.52 kg of CO₂, which is 40% less than a seasonal rental and 49% less than a night in a hotel.**

We will detail our methods for calculation later.



Accommodation

Calculation of the carbon footprint per night for each type of accommodation

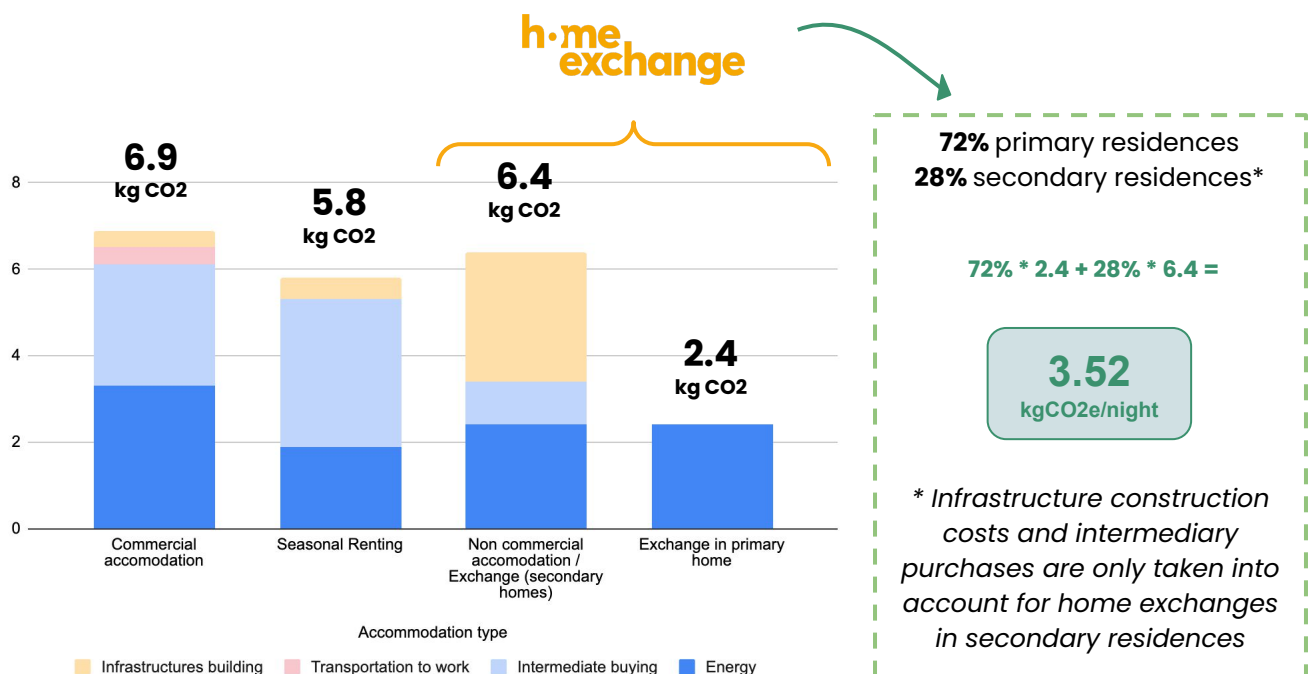
One of the challenges of this study was estimating the emissions produced from home exchanges.

ADEME has calculated and made available the emissions per night of **three different types** of accommodation: commercial (hotels or similar), non-commercial (second homes and visits to friends/family) and seasonal rentals (tourist accommodation rented by individuals via the Internet).

From our side, we have distinguished the exchange of **primary** residences from the exchange of **secondary** residences,

which represent **72%** and **28%** of the homes exchanged on HomeExchange in 2022 respectively.

To define the average carbon footprint per night of a home exchange in a **primary residence**, we considered the **energy consumption per night of a non-commercial accommodation** (2.4kg CO₂/night). As the accommodation is occupied as usual, just by other individuals, it is not necessary to take into account either **the construction or the purchase of intermediary services**.



Food & Drink

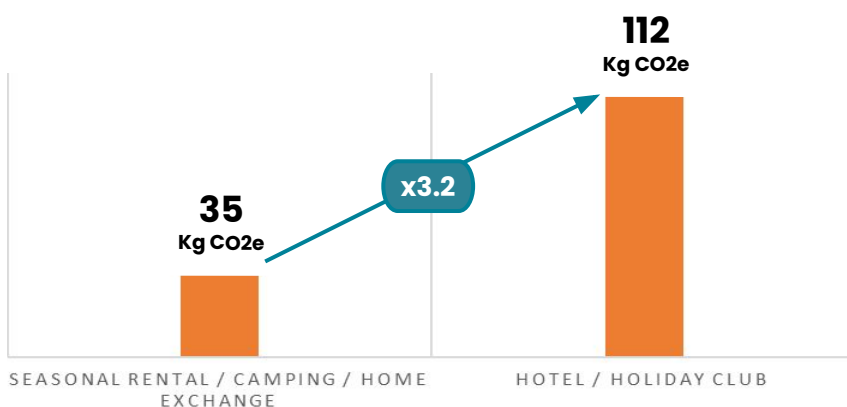
The carbon footprint related to food and drink is 3x lower in an exchange or rental than in a hotel or holiday club

A meal at a **restaurant**, on a basis of 25€/meal, emits on average 8 kg of CO₂, while a meal with red meat emits 6.29 kg of CO₂.

Therefore, **going to a restaurant emits more carbon** than a home-cooked meal, even if the latter contains red meat.

Home exchanging, as well as renting, seems to be one of the **best solutions** to avoid having to have all your meals in a restaurant, as can be the case when staying in a hotel or holiday club for example.

Impact of food and drink for a 7-day trip* (kg CO₂e / Day)



Impact of a meal at a restaurant

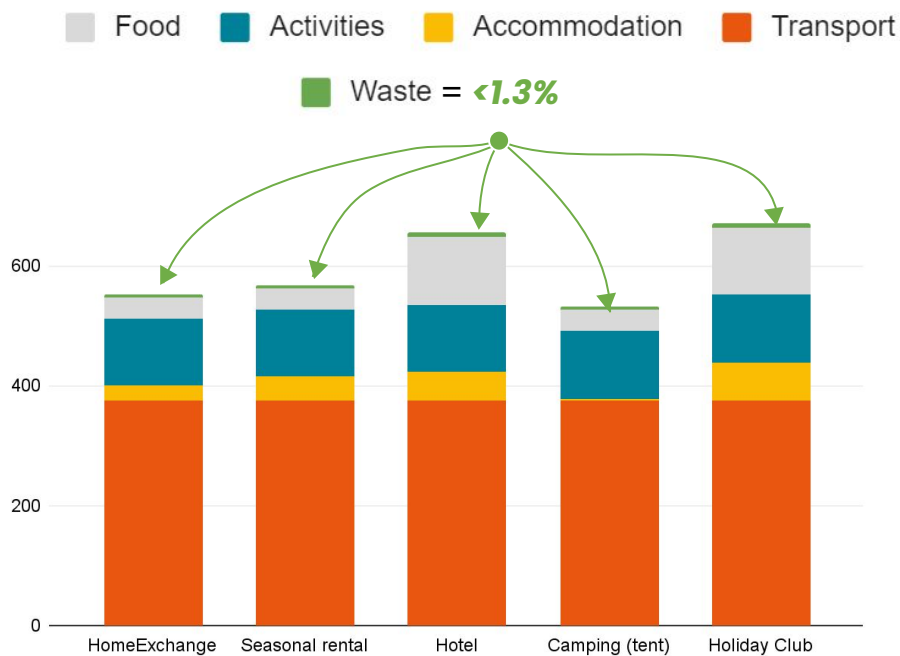
- Raw materials
- Travel (tourists, employees)
- Restaurant infrastructure and energy
- Waste

*Calculations made on the basis that 100% of the meals in hotels/holiday clubs are taken in restaurants

Waste

Waste represents less than 4% of GHG emissions

Breakdown of trip emissions by emission source (%)
(Trip type #1)



For each of the trip type, waste ultimately represents **less than 4% of the total carbon footprint of the trip.**

Although the impact is low within the scope of our study, limiting waste production and ensuring its proper management remains a central topic. It lies at the heart of issues related to the **preservation of biodiversity** and **sustainable resource management.**

04.

Conclusion

The main sources of greenhouse gas emissions and the necessary action measures

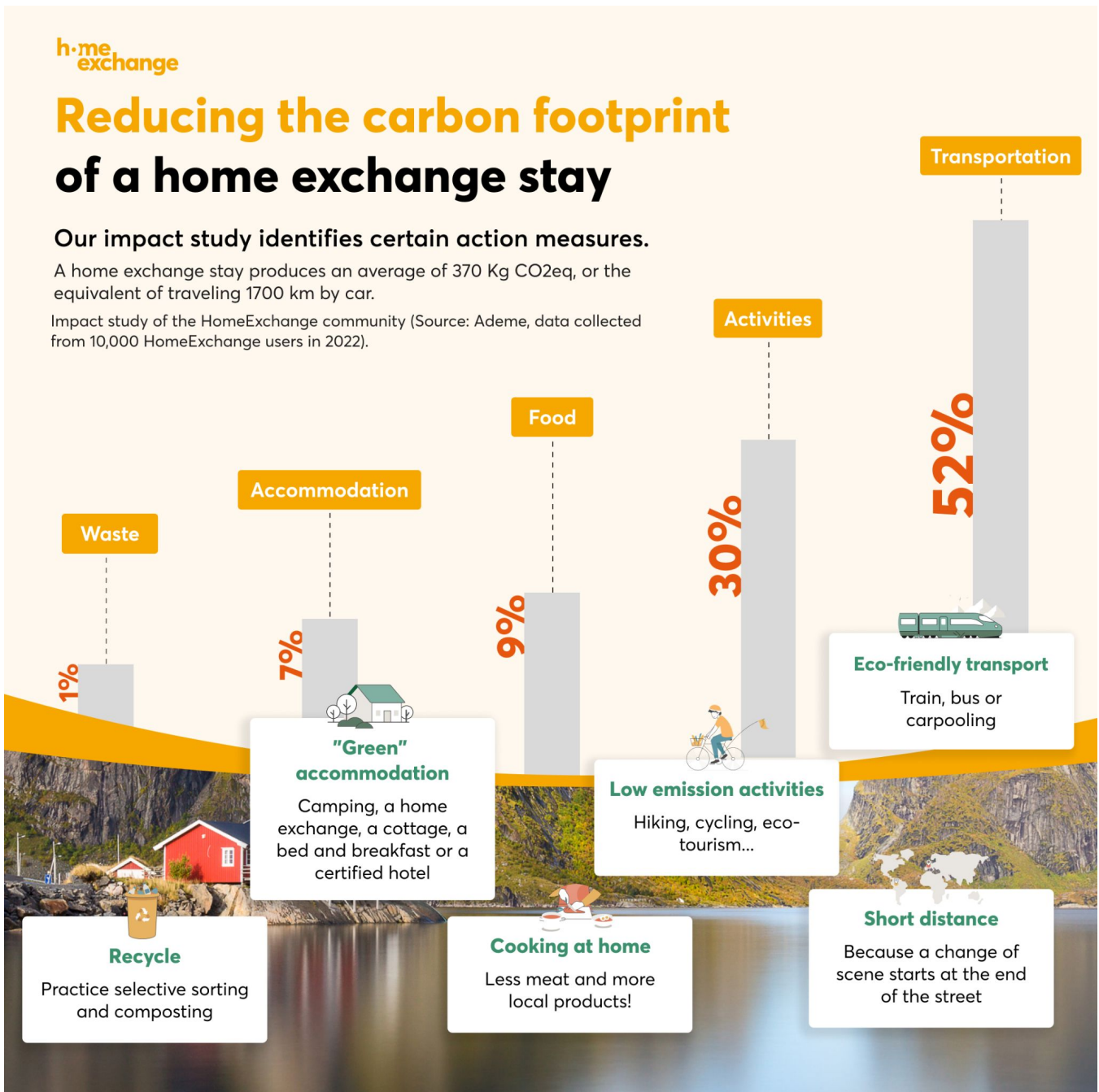
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Reducing the carbon footprint of a home exchange stay

Our impact study identifies certain action measures.

A home exchange stay produces an average of 370 Kg CO₂eq, or the equivalent of traveling 1700 km by car.

Impact study of the HomeExchange community (Source: Ademe, data collected from 10,000 HomeExchange users in 2022).



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Let's make sustainable travel desirable

Home exchanging seems to be a more ethical solution to **travel better but it does depend on individual choices**: distance traveled, mode of transport used, tourist activities, dietary behavior, etc.

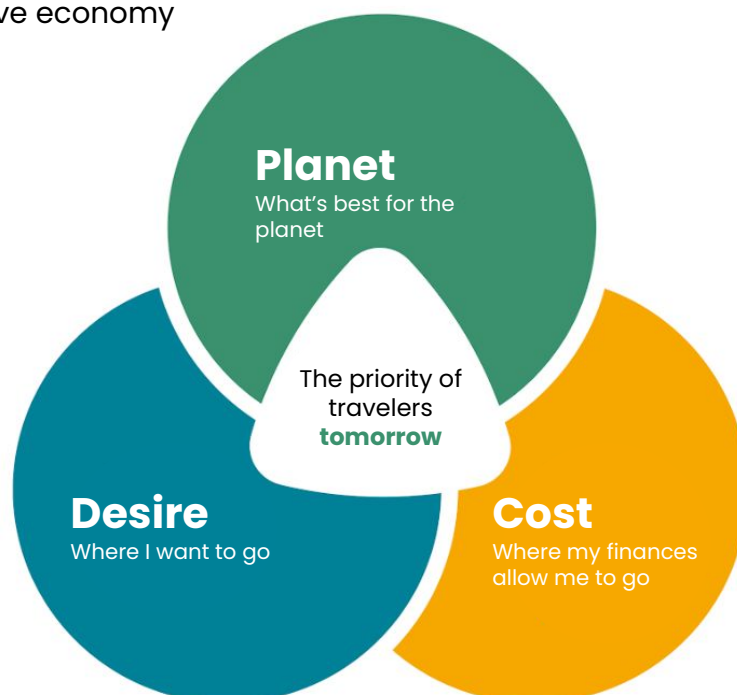
As a stakeholder in the tourism industry, we have a key role to play in making travelers aware of the need to opt for less polluting modes of transport, to value local destinations, and to choose more environmentally-friendly activities. To continue to be able to travel, the carbon footprint of our trips as travelers must be reduced and we believe that it is a matter of changing the norm of tourism and changing the way we think. **Let's make sustainable travel desirable**: closer, longer, slower, less consuming.

Beyond the carbon aspect, the practice of home exchanging is part of the collaborative economy

and puts **humanity and respect at the center** of a tourism that has become systemic, massive and reckless.

It allows for slower tourism, and puts the responsibility of the traveler at the center of the experience. This is an asset which can help actualize more sustainable choices.

80% of our members feel **concerned** or **very concerned** about ecological issues. We can be happy with this figure because awareness is the first step to allowing everyone to make the right decisions. The road is long. We have a key role to play in encouraging our members to use more environmentally-friendly modes of transport and to travel in ways that are less harmful to the environment. In addition, 65% of our members say they already plan to take these issues into consideration when planning future vacations.



An ambitious climate strategy that is part of a global approach to improving our social, societal, and environmental footprint

This environmental impact study is an important step in our commitment to reduce our carbon footprint, not only as a company, but also as a travel community. It has allowed us to identify key areas for reducing GHG emissions, including the primary impact of distance and transportation choices.

This study is only one component of a global CSR strategy.

Since 2019, we have been implementing sustainable initiatives to educate our community and encourage them to adopt more environmentally-friendly travel practices.

We will continue to work on these actions and develop new ones to **achieve the ambitious goal we have set ourselves: to reduce our carbon footprint by -4% to -6% per year by 2030** (calculated per member).

We also call on all tourism stakeholders (companies, communities, associations) to join us in adopting a more sustainable approach.



Scope and limitations of the study

This study was conducted in the most comprehensive and objective manner. However, some uncertainties must be taken into account when interpreting these results.

These include:

- ▶ Emission factors and their inherent degrees of uncertainty, despite the reliable source that is ADEME.
- ▶ Emission factors and missing data, for which it was necessary to make assumptions, such as the emission factor "nature activity", or the amount of waste.
- ▶ The limitation of doing a study with our community which is not necessarily representative of all types of travelers.

The sole goal of this study is to **identify measures to reduce the carbon impact of travel**. This study does not constitute the calculation of the company's carbon footprint.

The uncertainties do not prevent approximate calculations of the carbon impact of a trip with HomeExchange being made.

Moreover, this study does not take into account other impacts such as the disappearance of biodiversity, the overconsumption of natural resources and the destruction of ecosystems linked to mass tourism and the imbalance of sources.

Thank you for your interest

The complete study is available upon request.
Please send your request to impact@homeexchange.com.

Appendix

Measurement of each stream

Emission factors used for the study

Trip Characteristics						
Transportation emissions	Plane		Train		Car	
Associated emission factors	0.152 - 0.2586 kgCO ₂ e / km / person	Carbon Database, ADEME	0.00592 kgCO ₂ e / km / person	Carbon Database, ADEME	0.2176 kgCO ₂ e / km / vehicle	Carbon Database, ADEME

Accommodation emissions	HomeExchange	Seasonal Rental	Hotel	Camping (tent)	Holiday Club
Associated emission factors	3.52 kgCO ₂ e/night	5.80 kgCO ₂ e/night	6.90 kgCO ₂ e/night	0.50 kgCO ₂ e/night	9.20 kgCO ₂ e/night

Activity emissions	Sporting Activities		Creative, Cultural, and Artistic Activities	Nature Activities / Ecotourism	
Associated emission factors	270 kgCO ₂ e/k€	Carbon Database, ADEME	210 kgCO ₂ e/k€	Carbon Database, ADEME	100 kgCO ₂ e/k€

Food & Drink emissions	Restaurant Meal	Meal with Red Meat	Meal with White Meat	Meal with Fish	Vegetarian Meal
Associated emission factors	8 kgCO ₂ e/meal	6.29 kgCO ₂ e/meal	1.35 kgCO ₂ e/meal	2.04 kgCO ₂ e/meal	0.51 kgCO ₂ e/meal
			Carbon Database, ADEME	Carbon Database, ADEME	Carbon Database, ADEME

Waste emissions	Emissions in kg of Co2 per kg of waste	
Associated emission factors	0.453	Carbon Database, ADEME

Measurement of each stream

Data, sources, and assumptions used

Trip Characteristics					
Type of accommodation	HomeExchange	Seasonal Rental	Hotel	Camping (tent)	Holiday Club
Data and Assumptions	Carbon Database, ADEME Non-commercial accommodation 72% are primary residences and 28% are secondary residences	Carbon Database, ADEME Seasonal rental	Carbon Database, ADEME Commercial accommodation	According to the German study: Climate Balance of Caravanning	Assumption: Carbon footprint of a night in a hotel + 33%
Activity emissions	Sporting Activities		Creative, Cultural, and Artistic Activities		Nature Activities / Ecotourism
Data and Assumptions	Monetary figures based on expenditure on recreational sporting, and leisure activities, Carbon Database, ADEME		Monetary figures based on expenditure on creative, cultural, and artistic activities, Carbon Database, ADEME		Monetary figures based on nature activities, an assumption because no existing emission factor
Food & Drink emissions	Meal in Restaurant	Meal with Red Meat	Meal with White Meat	Meal with Fish	Vegetarian Meal
Data and Assumptions	Monetary figure for accommodation vs. restaurant, an assumption of an average price of 25€	Carbon Database, ADEME	Carbon Database, ADEME	Carbon Database, ADEME	Carbon Database, ADEME
Waste emissions	HomeExchange	Seasonal Rental	Hotel	Camping (tent)	Holiday Club
Data and Assumptions	Carbon Database, ADEME. Waste emissions per day in kg: 1.59	Carbon Database, ADEME. Waste emissions per day in kg: 1.59	Assumption of standard quantity +50%	Carbon Database, ADEME. Waste emissions per day in kg: 1.59	Assumption of standard quantity +50%