The Climate Dividends Solution Detailed Declaration

Proponent

Contributing entity: **Decathlon**

Solution: **Active mobility**

Version control

Publication date: 08.06.2023

Version of the current document: 0.1

Version of the Protocol: 2.1

Table of content

I. Description of the project

A. Summary of the project

Decathlon designs, manufactures and sells bicycles and scooters, helped by other stakeholders such as international transportation companies, suppliers of components (Shimano for example). In this value chain, Decathlon is the conductor. Good to know, one out of four bikes manufactured in the EU is manufactured by Decathlon.

The transportation sector is the second-largest emitting sector after the energy industry. The transportation sector in Europe contributes approximately 23% of the total greenhouse gas emissions[1]. The first contributor in this sector is road transportation and more specifically passenger car transportation[2].

One solution to mitigate emissions from transportation is to use less fossil fuels, and therefore, the use of active mobility products such as bicycles and scooters instead of cars or high-carbon options, is a solution to decarbonize the economy.

In addition, the industry sector represent 10% of the GHG emissions in Europe[3]. To reduce global GHG emissions, the consumption of new products, and especially carbon-intensive products such as cars, has to decrease. In some cases, buying a bike leads to giving up on buying a car. Therefore, this is a second positive externality of Decathlon's activity in the soft mobility segment.

B. Summary of the claim

Climate Dividend ID of the solution	201001112

[1] Chiffres clés du climat France, Europe et Monde ÉDITION 2022

[2] Chiffres clés des transports - Édition 2023

[3] Panorama européen des gaz à effet de serre | Chiffres clés du climat 2022

Title of the solution	Active mobility
Sector of the solution	Mobility
Contributing entity name	DECATHLON
Selected methodology	NZI (Solution 4.1)
Type of impact	Avoided emissions
Type of claim	Forward-looking
Carbon footprint of the contributing entity	11,527,535 tCO_{2eq}, in 2022
Year of the first claim	2023
Total claim for the first year	1,072,087 tCO_{2eq}

II. Eligibility summary

A. Carbon footprint measurement

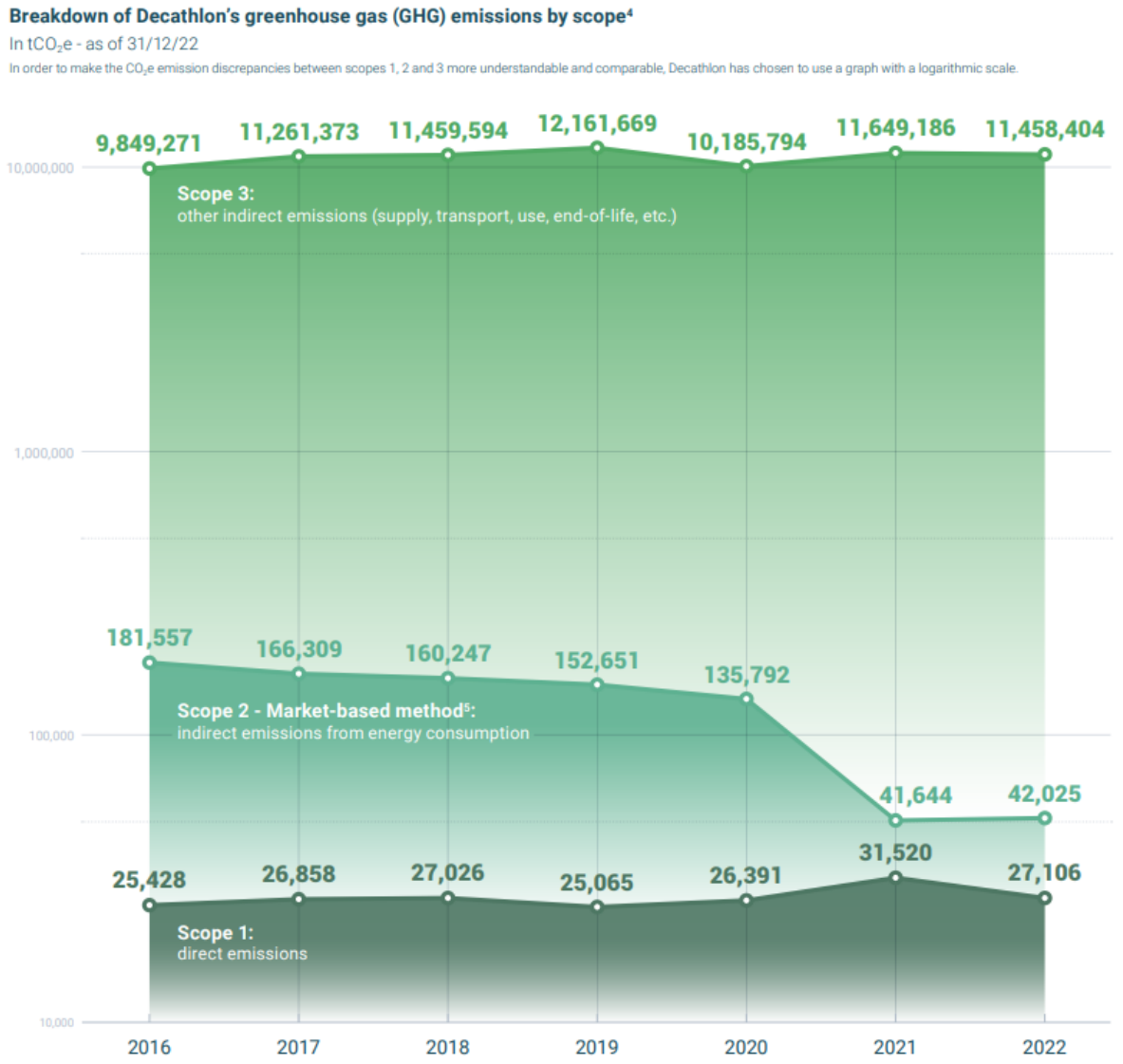
Mandatory document

Purpose: Carbon footprint assessment

Name of the supporting document: 2022 NON-FINANCIAL REPORTING DECLARATION

Description: Legal document for companies in France to assess their Non-Financial performances

Since 2016, Decathlon discloses its carbon footprint in its Non-Financial Reporting Declaration on the scopes 1, 2 and 3. For 2022, Decathlon has a hybrid methodology between the PEF (Product Environmental Footprint) and the GHG protocol. Decathlon aims to be completely compliant with the GHG protocol; action plans are in progress to achieve this goal in 2023. Please go to page 57 to have more information.



Decathlon assesses its carbon footprint with different tools used internally (PACE, SAC, METRIO, Resource Advisors etc...), please go to page 64 to have more information on how it is done.

B. Contribution to carbon neutrality

Decathlon designs products for mobility, from design to sales. Decathlon controls the entire value chain, calling on a range of stakeholders (tier 1 suppliers and above, international maritime carriers, etc...).

According to the EU taxonomy, Article 10, 1.c : Mobility products are eligible for the European Green Taxonomy as being "products [...] developing clean or climate-neutral mobility".

Code NACE :

For muscular bikes : 30.92 - Manufacture of bicycles and invalid carriages

For e-bikes : 30.91 - Manufacture of motorcycles

We emphasize that not all bicycles are designed for active mobility, so certain product categories will be excluded in the claim of Climate Dividends.

C. Positive climate impact

Thanks to modal reports, mobility products avoid carbon-intensive journeys and, consequently, contribute to decarbonizing the transport sector. In addition, in some cases, buying a bike leads to giving up on buying a car. Car manufacturing is a carbon-intensive industry, therefore mobility products contribute to decrease global emissions in this sector.

D. Do no significant harm principle

Designing and selling mobility products has no negative impact on climate change adaptation or transition to a circular economy. In some ways, this activity can positively contribute to these stakes. For example active mobility can reduce our dependence on fossil fuels and increase the resilience of cities. In the event of extreme weather events or other climate-related disruptions, active mobility allows for increased mobility and flexibility in transportation networks. This helps maintain access to essential services, facilitates evacuation, and enables emergency response efforts, all of which are crucial for climate adaptation and disaster resilience.

Active mobility contributes to the transition to a circular economy by extending product lifespan and supporting the sharing economy. Indeed, a bicycle is fully repairable and designed for last. For decades, bicycles have been sold second-hand, Decathlon created the Trocathlon more than 40 years ago.

For the others sustainability goals, Decathlon works on reducing the environmental impact of each product through the ecodesign. Decathlon has a policy on sustainable material and uses several indicators of the PEF to measure and reduce its pressure on the environment (for example, particulate matter or freshwater eutrophication).

E. No tie to fossil fuels

Designing products involve the use of fossil fuel for plastic material or energy production in some locations but no fossil fuels are directly needed during the use phase of the mobility product. Decathlon is not involved in exploration, extraction, production or sales of fossil fuels.

F. Conditions for removed emissions

Not applicable

III. Selected methodology

A. Relevance of the methodology

Mandatory document

Purpose: Methodology

Name of the supporting document: Méthodologie de calcul des émissions évitées de la mobilité et des dividendes climat

Description: French version of the detailed methodology to calculate avoided emissions and climate dividends for the sale of bicycles and scooters with a company-average approach.

The methodology was validated by the Climate Dividends association as the company-average approach of the toolbox of the Pillar B from Net Zero Initiative. The application of this methodology was done internally by the avoided emissions project manager (Loreline FOL).

B. Functional Unit

The functional unit chosen is: "Annual short-distance commuting".

It was decided to target daily trips, or functional trips, those likely to be the subject of a modal shift. 5 types of trip were targeted by the survey:

- Commuting to work
- Commuting to college, high school, university...
- Commuting to your children's school/nursery/daycare
- Commuting to shops, shopping centers, etc.
- Commuting to leisure activities (sports, theater...)

The use of bicycles for leisure purposes has been excluded from the study in order to focus on functional trips.

Focusing on specific routes and asking specific questions seems to improve the reliability of the results, as opposed to a broad question such as "How many kilometers do you expect to cycle in a week?".

On the other hand, there is bound to be both an overestimation and an underestimation bias in combined journeys depending on the respondents, for example home - daycare - work. Unless we carry out an ongoing panel study, it is impossible to control for this aspect. To illustrate this, on a 10km home-daycare-work trip, some people might have answered home-daycare 4km and home-work 8km; and others only home-work 8km. All in all, they are likely to offset each other.

C. System boundary

Phases considered

Emissions over the entire life cycle are taken into account, with a cradle-to-grave approach. These include :

- extraction of raw materials
- manufacturing
- packaging
- product transport from the factory to sales outlets
- use (for electric bikes and scooters)
- lifetime maintenance
- end-of-life

The calculation of the various stages is detailed in the emissions calculation section of the solution.

It should be noted that including maintenance over the entire life of the product is a different choice from the Net Zero Initiative, and contributes to significantly reducing the avoidance factor for mobility products.

For the solution, it was decided to take into account only the mobility product and not the accessories around it, such as padlocks, lamps, helmets and rainwear, in order to simplify the process. For a future iteration, the question arises of including these elements.

In this study, only those journeys that have undergone a change following the purchase of the mobility product are considered, since the others are identical in both scenarios.

Rebound effects

According to Decathlon's internal forecasts, the share of electric bikes is set to increase over the next few years. Switching massively to e-bikes from muscular bikes without increasing the use rate or distance could mean an increase in emissions due to the bigger footprint. Our design teams are working hard to reduce the unit impact of our products. Each electric bike produced must also contribute to avoiding as many emissions as possible through its use and replacement of more carbon-intensive transport. Decathlon is working on the user experience to encourage maximum use of the products purchased. This rebound effect is not measurable yet and it will also drive other users from their cars to e-bike, hence likely to maintain a positive impact.

An important point to emphasize is that a boom in the number of bicycles purchased would result in a greater number of avoided emissions and therefore Climate Dividends, but it would also mean a larger carbon footprint. It should be noted that Decathlon is committed to a reduction in its carbon footprint approved by SBTi, which is the Group's priority. The emissions avoided can be used to orient the portfolio internally, but will never be subtracted from Decathlon's carbon footprint.

D. Cut-off

No cut-offs were made during this study.

E. Data relevance

Geographical representativeness

The calculation of avoided emissions should be regionalized as much as possible. For

this first iteration, we have chosen to try to cover the countries that represent the maximum sales of the categories in the next table. Decathlon can contact buyers of its products if they have a Decathlon card and agree to receive communications. To give an order of magnitude, this represents 46% of Decathlon buyers in France.

The countries surveyed were France, Belgium, Spain and Italy. The other countries did not have a sufficiently large base of potential respondents. For example, for the connected electric bike, there are 3 models. However, there are only 85 people who have bought these models within the last 2 years (with a minimum of 4 months' use) and who have a Decathlon card. This is too small a base to send out, and there will certainly be fewer than 10 responses. In view of the cost of sending to an additional country, it was decided to focus on the 4 countries mentioned above and to apply the results only to Europe.

It should be noted that these 4 European countries are not those with the highest levels of active mobility. According to a 2021 "Statista Global Consumer Survey", the Netherlands, Germany and India are the countries where people use bicycles most for daily commuting. The proportion of respondents who say they use their bike at least twice a week is 58% in the Netherlands and 36% in Germany and India. Italy comes 8th with 26%, Spain 10th with 24% and France 12th with 18%. Taking these three countries plus Belgium for this study allows us to get the best estimates, since these are not the countries where people use bicycles the most or use the least, they are in the middle of European countries.

In an iterative logic of continuous improvement, if in the future we are able to obtain sufficient responses in one country (France, for example), we will regionalize the avoidance factors following the same methodology as presented in this document.

Temporal representativeness

The methodology was built in May 2023 on a baseline scenario obtained from a user questionnaire launched in April 2023.

The databases used are the latest updates available. It should be noted that the integration of the EF 3.1 database published in April 2023 will only be integrated into Décathlon tools between September and December 2023. Product data will then be updated to enable climate dividends to be claimed in 2024 for the year 2023.

Technological representativeness

The product categories under consideration are those that avoid the use of carbon-based transport. It is necessary to prove the avoidance of carbon-based journeys, which excludes, for example, Van Rysel's top-of-the-range sport bikes, which are performance road bikes. The table below illustrates the categories considered in the study and those excluded.

SPORT	DESCRIPTION	STATUS
URBAN CYCLING	Bikes for urban mobility	**Under study**
HYBRID CYCLING	Hybrid bikes	**Under study**
INTERMODAL CYCLING	Folding bikes	**Under study**
SCOOTER	Adult scooters	**Under study**
MOUNTAIN CYCLING	Mountain bikes	**Under study** for entry-level bikes only **Other types excluded**
ROAD CYCLING, RACING, TRIATHLON	Road bikes	**Excluded** for the moment, although some products (entry-level and mid-range) could be included.
KID CYCLING	Children's bikes, from 1 to 12 years old	**Excluded**

For the MOUNTAIN CYCLING category, we wanted to include them in the study because, according to the product manager responsible for this segment, entry-level products can be used by extension for urban mobility. This study aims to confirm or refute this hypothesis, hence the need to include them in the study.

In each of the product categories under investigation, it was decided to take a representative product in terms of life-cycle emissions. This choice was made by product engineers from the cycle universe.

F.Data accuracy assessment

Chosen approach

Following the recommendations of the Climate Dividend Protocol, and in view of the technical possibilities within the company, we have decided to adopt a company-specific approach. The table below, taken from the WBCSD, shows the three possible levels of precision.

Approach	Specificity	Description	
		Solution (S)	Reference (R)
User-specific (or "Customer-specific")	**High** Recommended approach for specific solution assessments whenever data is accessible and assessments remain feasible with a reasonable number of resources	Specific life cycle emissions of each solution sold. The company performs a detailed calculation for each solution, considering specific usage scenarios Example: life cycle emissions of a specific electric vehicle sold by a company in Germany	Specific reference for each customer who uses a company's solution. The company performs a detailed calculation for each solution, with detailed knowledge of the context Example: reference behavior that the owner of this specific car would have adopted instead
Company-specific	**Medium** Recommended if the calculation of a solution's life cycle emissions or reference is too complex at the scale of each sale	Average life cycle emissions of a solution, specific to a company. The company performs a detailed calculation, considering a usage scenario by solution range and by market in which the solutions are sold Example: average life cycle emissions of all electric vehicles of the same type sold by a company in Germany	Average reference for a given company's solution sold in a given market. The company performs a detailed calculation, considering a reference scenario for each solution line and each market in which the solutions are sold Example: reference behavior that a company's average customer would have adopted instead
Market average	**Low** Recommended for market averages and preliminary evaluations of avoided emissions	Average life cycle emissions of the solution in a given market Note: In this approach, emissions are not specific to the company and can be standardized for a given type of solution in a given geography Example: average life cycle of a B-segment electric vehicle, all brands combined, sold in Germany	Average reference of the solution in a given market Note: In this approach, the reference situation is not specific to the company and can therefore be standardized for a given solution in a given geography Example: reference behavior that an average German owner of a B-segment electric vehicle would have adopted instead

It is thanks to Decathlon's advanced LCA practice and a survey of our users, described in the calculation of the reference scenario, that we can move from the average market approach proposed by the Net Zero Initiative to a company-specific approach.

Emission factors selection

Decathlon uses several databases to carry out its product LCAs:

- EF 2.0 (Europe)
- Ecoinvent (3.6)
- ADEME's empreinte database

All Decathlon's LCAs comply with the PEF and are carried out using Glimpact.

For baseline scenario impact, data come from ADEME's empreinte database. This is the basis used to calculate the impact of transporting people at Decathlon, and in order to maintain consistency with Decathlon's carbon footprint, it is also the basis chosen for avoided emissions.

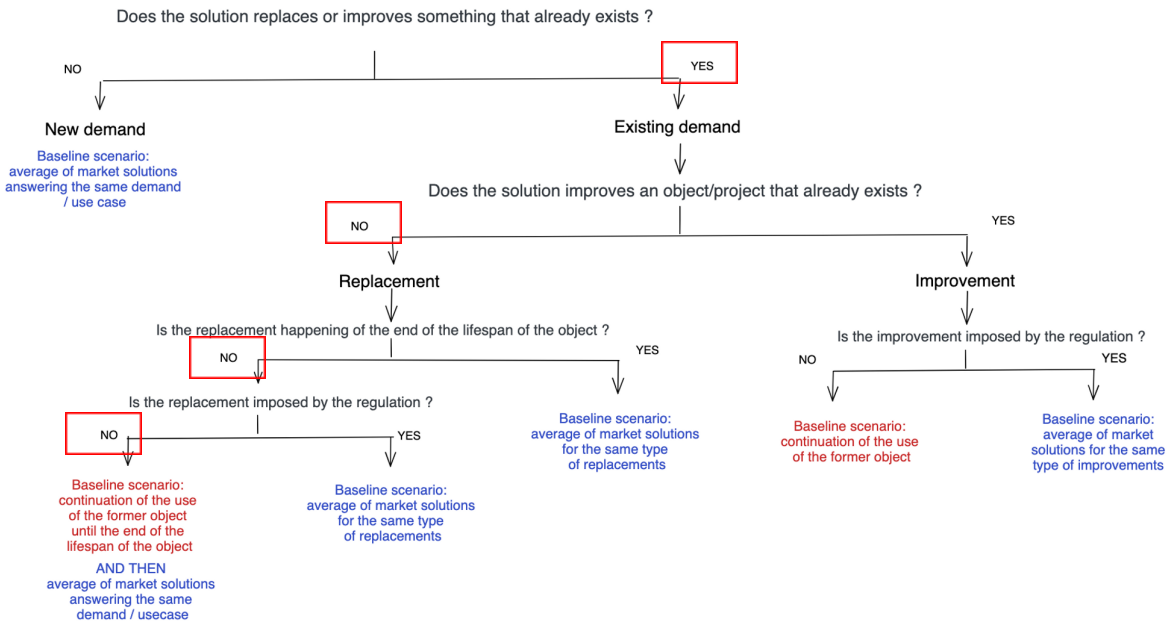
When data for several countries are available, we have weighted the reconstructed emissions factors by the distribution of sales between the 4 countries under study: France (66%), Italy (15%), Spain (10%) and Belgium (9%).

When only the French data is available, this data has been used for all the countries. Regarding means of transportation with electricity, France has a low-carbon intensity, therefore, choosing France is a conservative choice.

G. Baseline scenario

The climate dividend protocol recognizes the Net Zero Initiative's methodology for determining the choice of reference scenario. Thus, the choice of reference scenario is guided by the decision tree in the NZI's Pillar B guide.

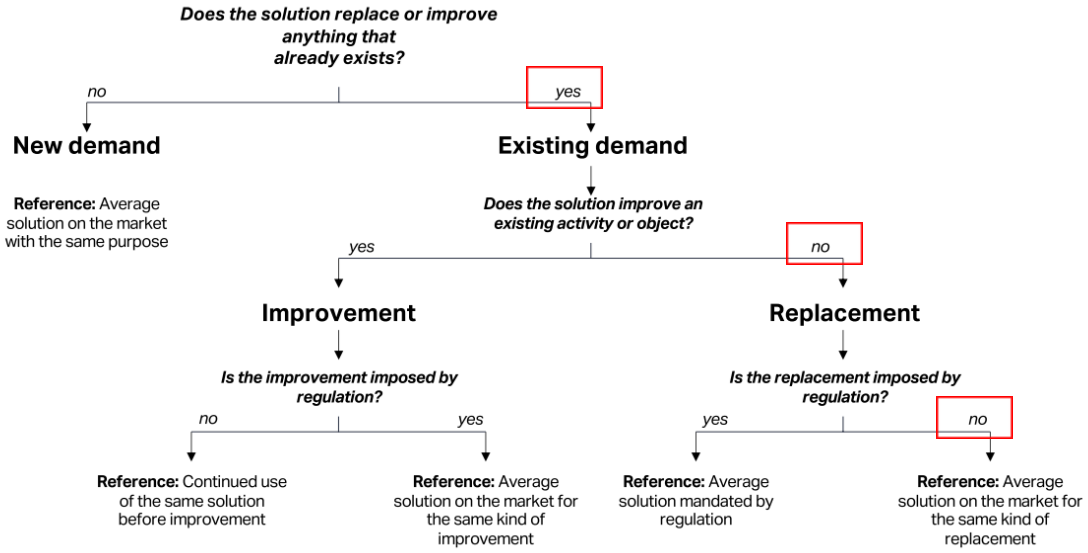
The purchase and use of a bicycle enables carbon-intensive journeys to be replaced, so this corresponds to the "Replacement" branch. On the other hand, this does not mean that the previous means of transport has reached the end of its life. Finally, replacement is not imposed by regulation, so the reference scenario is the continuation of the existing system.



Other accepted Decision Tree for selecting the baseline/reference scenario. Source: Net Zero Initiative, Pilar B (translation from the Climate Dividends Association).

To determine the reference scenario, the aim is to know how our customers travel before purchasing a mobility product. As mentioned above, Decathlon's strength lies in its ability to contact a large number of customers. A post-purchase questionnaire was sent out. In this study, only those journeys that underwent a change following the purchase of the mobility product are considered, since the others are identical in both scenarios.

We studied an alternative reference scenario. If we had followed the decision tree indicated in the WBCSD guidelines, we would have had to take the market average as the reference scenario, with 1 km traveled as the functional unit.



Decision Tree for selecting the baseline/reference scenario. Source: Guidance on Avoided Emissions: Helping business drive innovations and scale solutions toward Net Zero

The philosophy behind the calculation changes: with the first baseline scenario, we look at the positive effect of Decathlon on the reduction of transport-related emissions; whereas with the approach via this second baseline scenario, we highlight that each kilometer of bicycle traveled enables a more carbon-intensive means of transport to be avoided. Both methods seem to be acceptable, depending on what we wish to highlight.

With initial calculations based on French studies of French mobility, the results would be similar or slightly higher, depending on the data and assumptions used.

Based on a 2019 survey of French mobility[4], and using the Empreinte database with a conservative principle, we obtain that the average intensity of 1km of travel is 0.11 kgCO2eq. For information, according to the study, over 62% of journeys are made by car, 23% by walking, less than 10% by public transport and around 3% by bicycle. These parameters were used to establish the reference scenario, i.e., an average kilometer. For the scenario with solution, considering an e-bike, we obtain an impact of 893 kgCO2eq including the entire life cycle for a total of 28,800 km covered, giving a carbon intensity of 0.03 kgCO2eq/km. Note that the Empreinte database gives an intensity of 0.02 kgCO2eq/km for an electric bicycle, so the figure of 0.03 kgCO2/km is conservative.

[4] Comment les Français se déplacent-ils en 2019 ? Résultats de l'enquête mobilité des personnes | Données et études statistiques

This gives an avoidance factor of 0.081 kgCO2/km, or a total of 2.3 tCO2eq avoided over the 28,800 km covered in a bike's lifetime. With a discount rate of 4%, this gives an avoidance factor of 1.9 tCO2eq for an a-bike over its entire lifetime. For comparison, in this study we show that the avoidance factor for this bike category with the alternative reference scenario option is 1.5 tCO2eq.

To conclude, since the first baseline scenario leads to a smaller avoidance factor and since the toolbox from Net Zero Initiative is the base of the work on avoided emissions at Decathlon, we selected the first baseline scenario as the continuation of user behavior. Two aspects will be looked at, the modal report and the renouncement to buy a car, as it has been done in the Pillar B toolbox.

H. Dynamic aspects

The energy mix and emission factors of the transport sector may be reduced in the coming years as a result of decarbonization policies. This aspect is taken into account as trend decarbonization, according to the Net Zero Initiative methodology.

It does not include changes in practice. In France, the share of modal shift is 3%, and the aim is to multiply this by 4 by 2040[5] to catch up with countries like Germany, which is at 12%. This is a long-term scenario, and exceeds the lifespan of bicycles currently on the market. As a result, it is currently too complicated to model and take into account the evolution of cycling.

The evolution of regulation is not taken into account, as European public policies on mobility are not yet very clear.

For the last two points, not taken into account, modal shift will be encouraged, so this would probably increase avoidance factors. Not taking them into account is not detrimental to the credibility of the study.

IV. Impact calculation

A. Solution's scenario results

Mandatory document

Purpose: Calculation details

[5] PROSPECTIVE 2040-2060 DES TRANSPORTS ET DES MOBILITÉS - Rapport de SYNTHÈSE - Février 2022

Name of the supporting document: Products MOBILITY environmental impact - REPRESENTATIVE PRODUCTS

Description: Calculation of the environmental impact of representative products for each category. 5 steps :

1/Extraction of results in PEF format (internal tool)

2/Recalculation of end-of-life for a GHG protocol approach

3/Integration of maintenance

4/Integration of use

5/Compilation of data to obtain the environmental impact from cradle-to-grave

Emissions over the entire life cycle are taken into account. These include :

- extraction of raw materials
- manufacturing
- packaging
- product transport from factory to point of sale
- use (for electric bikes and scooters)
- lifetime maintenance
- end-of-life

The calculation of the various stages is detailed in the following points.

Focus on raw materials, manufacturing, packaging, transport and end-of-life

All Décathlon products are subject to a life-cycle analysis, in line with the Product Environmental Footprint (PEF). The Net Zero Initiative recommends a life-cycle approach to assessing the environmental impact of a solution, which is the case with this PEF methodology.

It should be noted that PEF includes avoided end-of-life emissions in its impact calculation. In other words, all product families and materials that have a recycling channel are considered to avoid virgin raw materials, giving rise to significant negative end-of-life emissions.

For this study, it was decided to reprocess the data from internal tools to exclude emissions avoided at the end of a product's life, and thus to have an approach compatible with the GHG protocol.

The difference between the two approaches is significant, since the GHG protocol approach is 1.4 to 2 times greater than the PEF approach. This difference can be explained by the high level of avoided emissions linked to the end-of-life of aluminum in particular.

Taking the GHG protocol approach enables us to apply the principle of conservation, which is essential in calculating avoided emissions.

Note: all BOMs for representative products are available. The BOMs show all the elements modeled. To find out the detailed modeling of each element, you need to enter an expert tool internal to Décathlon. For two categories, an extraction has been made to illustrate how all products are modeled. The information can be accessed via the following link: Extract BOM summary.

Focus on the use phase

For each product fitted with a battery, our in-house teams are able to give the battery capacity, the average number of kilometers covered with electric assistance, and the average speed of use. All these data enable us to determine the electricity consumption per kilometer and, ultimately, the impact per kilometer for each type of product. An energy decarbonization effect is taken into account, as is the case in sheet 4.1 of the Net Zero Initiative's Pillar B guide. The coefficients of this study are applied here to usage.

Data range from 2 kgCO2eq/km to 4 kgCO2eq/km after application of the energy decarbonization effect. By way of comparison, NZI gives an emissions factor of 2.04 kgCO2eq/km, after application of the decarbonization effect.

Focus on maintenance

Thanks to internal experts, it is possible to determine how many spare parts will be needed over the life of the product.

For example, only the frame and fork will remain unchanged over the life of the product. Electrical components (battery, motor, screen, various wires and elements) will be replaced once. Ten inner tubes and five tires are considered for the maintenance calculation. Transmission components will be replaced twice, for a total of three components over the entire service life (chain, sprockets, etc.). Other components will be replaced once or twice, depending on the component (saddle, wheel, brakes, etc.).

It was decided to assign a fixed maintenance impact to the solution, with two entry keys:

- Is it a bike or a scooter?
- Are there any electronic components?

There are four possible maintenance scenarios for each of these categories, as shown in the table below.

	Maintenance impact (kgCO2eq/qty)	Bikes	Scooter
Maintenance categories	Electrical parts	167	168
	Non electrical parts	274	45

So, for example, for the travel bike category, the impact of maintenance will be 274 kgCO2eq over the bike's entire lifetime. On the other hand, for the e-trekking bike category, the impact of maintenance will be the sum of 167 and 274 kgCO2eq, i.e. a total of 441 kgCO2eq over the lifetime of the bike.

In terms of order of magnitude, the impact of a bike over its entire lifespan, including maintenance, is 2 times greater than the impact without maintenance. Thus, a conventional electric bicycle emits 834 kgCO2eq over its entire lifespan, excluding use, and for comparison, NZI considers an impact of 370 kgCO2eq. There is a ratio of 2.25 between the data. Taking maintenance into account means that we can really look at the impact of the product over its entire lifespan, and therefore make a conservative choice compared with NZI.

Detailed calculation and results

The solution's emissions are therefore calculated using the following formula:

$$E_{Solution} = E_{raw\ material} + E_{manufacturing} + E_{packaging} + E_{distribution} + E_{end-of-life} + E_{use} + E_{maintenance} + E_{intermodality}$$

Note: For this first iteration, we have decided to forego the calculation of intermodality ($E_{intermodality}$), i.e. the use of different modes of transport on a journey, for example, the use of the metro and a folding bike. This choice is motivated by a lack of data on this aspect, with fewer than 10 respondents in each category. For this first iteration, we assume that $E_{intermodality} = 0\ kgCO2eq.$

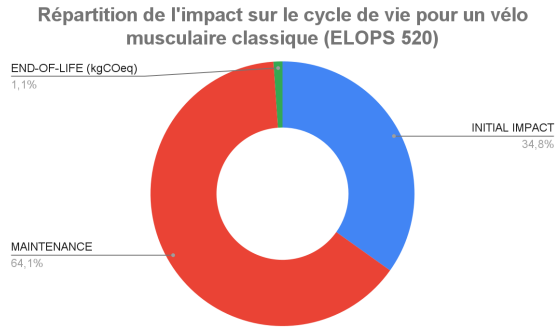
The table below summarizes the LCAs of the products representing the 15 categories, taking into account the aforementioned end-of-life, maintenance and usage data over the entire lifecycle. These data are used as the solution's emissions.

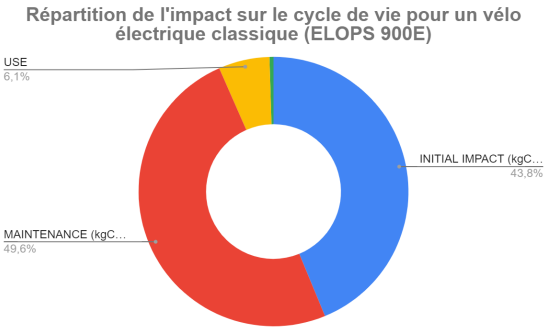
SPORT	CATÉGORIE	NAME	TOTAL IMPACT (kgCO2eq)
INTERMODAL CYCLING	CLASSIQUE 20"	FOLD 500	**461**
	ELECTRIQUE 20"	E FOLD 500	**781**
URBAN CYCLING	LONGTAIL	LONGTAIL R500	**1587**
	E-BIKE CONNECTED	ELOPS 920 CONNECT	**982**
	TRAD BIKE	520 ELOPS LF	**427**
	LONG DISTANCE	LD 500 MEN	**510**
	E-BIKE	ELOPS 900 E CADRE BAS	**888**

SCOOTER	MÉCANIQUE	TOWN 7 XL	**142**
	ELECTRIQUE	RIDE 920 E	**582**
MOUNTAIN CYCLING	MUSCULAIRE	ST 100	**473**
	ELECTRIQUE	E ST 100	**766**
HYBRID CYCLING	Trekking bikes	RS 500 LF	**580**
	Trekking e-bikes	RS 500 E	**961**
	Travel bikes	TOURING 520	**562**
	Gravel bikes	GRVL 120	**451**

Results in green are for muscle bikes and results in blue are for electric bikes.

To illustrate these data, here is the breakdown by life cycle phase for a muscle bike, the 520 ELOPS LF, and for an electric bike, the ELOPS 900 E LOW FRAME.





Maintenance is an important part of the impact, and this first version may overestimate its importance, allowing us to be conservative. On the other hand, it will be a point of improvement to make the measurement more reliable.

B. Baseline's scenario results

Mandatory document

Purpose: Calculation details

Name of the supporting document: Final Results Parameters

Description: Compilation of the results obtained in each category for the parameters of modal shift and car purchase renunciation. Links available to

databases and parameter calculations.

A questionnaire was sent out to determine the baseline scenario, based on our products and clients thanks to our internal user survey center (CCU in French).

Number of respondent

The survey was sent out to 110,000 people, and received 6,405 responses, giving a response rate of 6%. This is slightly higher than the average response rate for Decathlon's internal user surveys, which is normally 5%.

The categories with the fewest respondents are more recent customer segments. For the time being, it's not possible to get a huge number of responses, but this gives us an initial idea of the potential for avoided emissions. With a view to continuous improvement, a future user survey will provide more data and make the reference scenario more reliable.

SPORT	CATEGORY	NB RESPONSES
INTERMODAL CYCLING	CLASSIQUE 20"	415
	ELECTRIQUE 20"	98
URBAN CYCLING	LONGTAIL	80
	E-BIKE CONNECTED	116
	TRAD BIKE	1006
	LONG DISTANCE	79
	E-BIKE	513
SCOOTER	MÉCANIQUE	111
	ELECTRIQUE	152
MOUNTAIN CYCLING	MUSCULAIRE	2036
	ELECTRIQUE	254
HYBRID CYCLING	Trekking bikes	389
	Trekking e-bikes	833
	Travel bikes	45
	Gravel bikes	278

Note: there may be a response bias, as respondents may have felt concerned by this survey because they use the product purchased for urban mobility. There are many uncertainties in studies on avoided emissions. On the other hand, approximations can be used to provide an initial estimate.

Modal report

The primary aim of the questionnaire is to determine the modal shift associated with the sale of Decathlon products. The complete questionnaire[6] is linked to this report. Here are the different questions and steps used to study the modal shift and therefore the reference situation prior to product purchase.

We chose to look at modal shift for the following modes of transport:

- walking
- bus
- underground, RER, tramway...
- train, either regional train or high speed train
- bicycle, scooter
- electric bike, scooter, hoverboard...
- scooter or light motorcycle
- petrol car
- diesel car
- hybrid car
- electric car

As a reminder, it was decided to take into account only functional journeys, i.e. those that are repeated on a weekly basis, and more specifically the following 5 journeys:

- to work
- to secondary school or university
- to kindergarten or day-care center
- to go shopping
- to go to leisure activities

For each type of journey (e.g. home - work), here are the details of the calculation:

- Select the seasons in which the product is used for this journey, to include the effect of seasonality in the calculation.
- For each season, how many times a week this journey is made, $nb_{day/week}$, to obtain the number of days this journey is used over one year: $nb_{days} = \sum_{seasons} nb_{day/week} \times \frac{52}{4}$
- How far do you travel to work (one way)? To facilitate the choice of respondents, the answer is a selection from a range. To establish the number of

[6] Questionnaire CCU

kilometers (Nb_{km}), we take the average value of the range. For example, if a user selects the 3-5 km range, the value of 4 will be used.

- Determining the reference scenario > Before using this product for this trip, which mode of transport did you use most? Only one answer possible, in order to facilitate the reference scenario. The questionnaire would be overloaded if multiple choice were possible, and analysis would be impossible.

With this block of questions, we obtain the total number of kilometers replaced by the different modes of transport on the journey. Repeat on all trips. We obtain the total number of kilometers replaced per year for each mode of transport.

In order to represent the panel of our users with variations in usage, the total number of kilometers for each mode of transport is divided by the number of respondents to the questionnaire in each category. This gives an average for each category, where each product sold avoids an average number of kilometers.

To summarize, here's the formula for obtaining the total number of kilometers replaced in each category:

$$nb_{total\ km} = \sum_{modes} \left[\frac{\sum_{journeys} \left[\sum nb_{days} \times nb_{km} \times 2 \right]}{nb_{responses}} \right]$$

Renouncement to buy a car

All respondents who chose to use the mobility product for daily commuting were asked whether they would forego the purchase of a car. The percentage of respondents who would forego the purchase of a car is obtained by dividing the sum of affirmative answers by the total number of respondents. The exact question is: You make a lot of daily trips with [product name], at the time of purchase did you hesitate and give up on buying a car? Yes/No

Results for the two parameters

For each category, the table below shows the number of car kilometers avoided (Total car), the total number of kilometers avoided, regardless of means of transport (Total kilometer), and the percentage of car purchase renounced (Car avoided).

SPORT	CATEGORY	Total car	Total kilometer	Car avoided
INTERMODAL CYCLING	CLASSIQUE 20"	250	945	13%
	ELECTRIQUE 20"	718	1597	17%
URBAN CYCLING	LONGTAIL	2521	4017	23%
	E-BIKE CONNECTED	1461	2266	11%
	TRAD BIKE	467	1467	12%
	LONG DISTANCE	860	2275	10%

	E-BIKE	816	1506	9%
SCOOTER	MECANIQUE	84	418	5%
	ELECTRIQUE	685	1918	8%
MOUNTAIN CYCLING	MUSCULAIRE	200	657	0%
	ELECTRIQUE	582	1250	0%
HYBRID CYCLING	Trekking bikes	271	902	4%
	Trekking e-bikes	903	1443	6%
	Travel bikes	721	2339	2%
	Gravel bikes	450	1609	6%

The "Total car" column allows comparison with the ADEME study. In this study, a muscle bike avoids 929 km of car travel per year, and an e-bike 1817 km of car travel per year. In the user survey, these parameters are divided by at least 2, making the final result conservative compared with the NZI study.

The only bike that far exceeds these figures is the longtail. This bike, equipped with a platform at the rear, has been specially designed to replace a car, since it can carry large volumes (two children, for example). In view of the bias mentioned above in the document on the ADEME study, the results of the CCU survey are more consistent with the reality on the ground in terms of kilometers avoided.

In the study, the foregone car purchase amounts to 10% and 13%, respectively for a muscle bike and an electric bike. Similar orders of magnitude are observed here, with the exception of the "INTERMODAL CYCLING" sport and the "LONGTAIL" category.

In 2023, the Observatory of the French relationship with bicycles[7] reported results on the modal shift associated with bicycles. The first interesting element is that when there is a modal shift (in 63% of cases), it is mainly a replacement for the car, at 54%. This figure varied between 26% and 66% in the in-house study. Overall, e-bikes are higher than this national average, with 66% for the longtail category and 62% for the trekking e-bike category.

In addition, the press release mentions the fact that longer distances are covered with e-bikes, which was also observed in the user survey.

The press release also mentions the 14% modal shift from walking to cycling. On average in the CCU study, this figure is 7.5%, with wide variations, since the intermodal muscle bike is close to 20% compared with 0% for the travel bike category.

In conclusion, in view of the two French studies, the data obtained through Decathlon's CCU inter survey are consistent and provide a relatively reliable reference scenario. Reliability will be increased by iteration.

[7] La France à vélo : bientôt tous cyclistes ?

Impact of baseline scenario

The previous steps provide the emissions that would have occurred during a year of functional journeys. Multiplying by the product's lifetime gives the emissions over the product's entire lifetime.

The modal report and the car avoided combined gives us the total impact of the baseline scenario.

$$E_{baseline} = E_{modal\,report/year} \times l + E_{car}$$

With l, lifetime in years. This parameter is difficult to establish, which is why we have retained the same assumption as NZI for bicycles, which is 12 years. For scooters, we've chosen a life of 3 years, a figure provided by an in-house expert. Lifespan is a key parameter which will be studied in a subsequent sensitivity analysis.

SPORT	CATEGORY	l (year)	Baseline scenario (tCO2e)	Car avoided (tCO2e)	$E_{baseline}$ (tCO2e)
INTERMODAL CYCLING	CLASSIQUE 20"	12	0,9	1,0	1,9
	ELECTRIQUE 20"	12	2,0	1,4	3,4
URBAN CYCLING	LONGTAIL	12	5,2	1,8	7,1
	E-BIKE CONNECTED	12	3,7	0,9	4,6
	TRAD BIKE	12	1,3	1,0	2,3
	LONG DISTANCE	12	2,1	0,8	3,0
	E-BIKE	12	2,0	0,7	2,8
SCOOTER	MECANIQUE	3	0,1	0,4	0,5
	ELECTRIQUE	3	0,6	0,6	1,2
MOUNTAIN CYCLING	MUSCULAIRE	12	0,7	0,0	0,7
	ELECTRIQUE	12	1,4	0,0	1,4
HYBRID CYCLING	Trekking bikes	12	0,9	0,4	1,3
	Trekking e-bikes	12	1,9	0,5	2,4
	Travel bikes	12	1,6	0,2	1,8
	Gravel bikes	12	1,3	0,5	1,9

For example, for the Trekking e-bikes category, we consider that over a 12-year period, the user would have emitted 1.9 tCO2eq with more carbon-intensive modes of transport, and that a car would have been manufactured emitting 0.5 tCO2e.

C. Estimated positive impacts over the lifetime of the solution

Mandatory document

Purpose: Calculation details

Name of the supporting document: AVOIDANCE FACTORS V2_2023_03

Description: Compilation of the results of the CCU survey, the impacts of the products and the data used to calculate the impact of the reference scenario, to arrive at the "DETAILED RESULTS" tab. This tab also shows the application of the discount rate to arrive at the final avoidance factors for each category.

Avoidance factor before discount rate

Avoided emissions are the difference between the emissions of the reference situation and the emissions of the solution. If this difference is negative, then there are avoided emissions.

$$E_{avoided} = E_{baseline} - E_{solution}$$

Applying this formula to each category produces the table below.

SPORT	CATEGORY	Avoidance factor (tCO2e)
INTERMODAL CYCLING	CLASSIQUE 20"	**1,42**
	ELECTRIQUE 20"	**2,56**
URBAN CYCLING	LONGTAIL	**5,30**
	E-BIKE CONNECTED	**3,55**
	TRAD BIKE	**1,86**
	LONG DISTANCE	**2,39**
	E-BIKE	**1,85**
SCOOTER	MECANIQUE	**0,36**
	ELECTRIQUE	**0,62**
MOUNTAIN CYCLING	MUSCULAIRE	**0,19**
	ELECTRIQUE	**0,74**
HYBRID CYCLING	Trekking bikes	**0,72**

	Trekking e-bikes	**1,43**
	Travel bikes	**1,19**
	Gravel bikes	**1,41**

As a reminder, NZI gave an avoidance factor of 2.5 tCO2eq for a muscle bike and 4.5 tCO2eq for a VAE. With the exception of the longtail, which is higher, all the other avoidance factors are lower than those of NZI. Cargo bikes like the longtail are designed to replace cars, this results makes sense. The comparison with NZI shows that the study is conservative, and does not overestimate the avoidance induced by the use of Decathlon's active mobility products.

Avoidance factor with a discount rate

The Climate Dividends protocol calls for the inclusion of a discount rate to take into account the uncertain effect of changing user behavior over time. A discount rate of -4% is applied annually over the product's lifetime. This value is the same as for energy-saving certificates[8].

This rate means that avoided emissions are more valuable in the first few years than in 10 years' time.

The table below shows the final avoidance factors that take this discount rate into account.

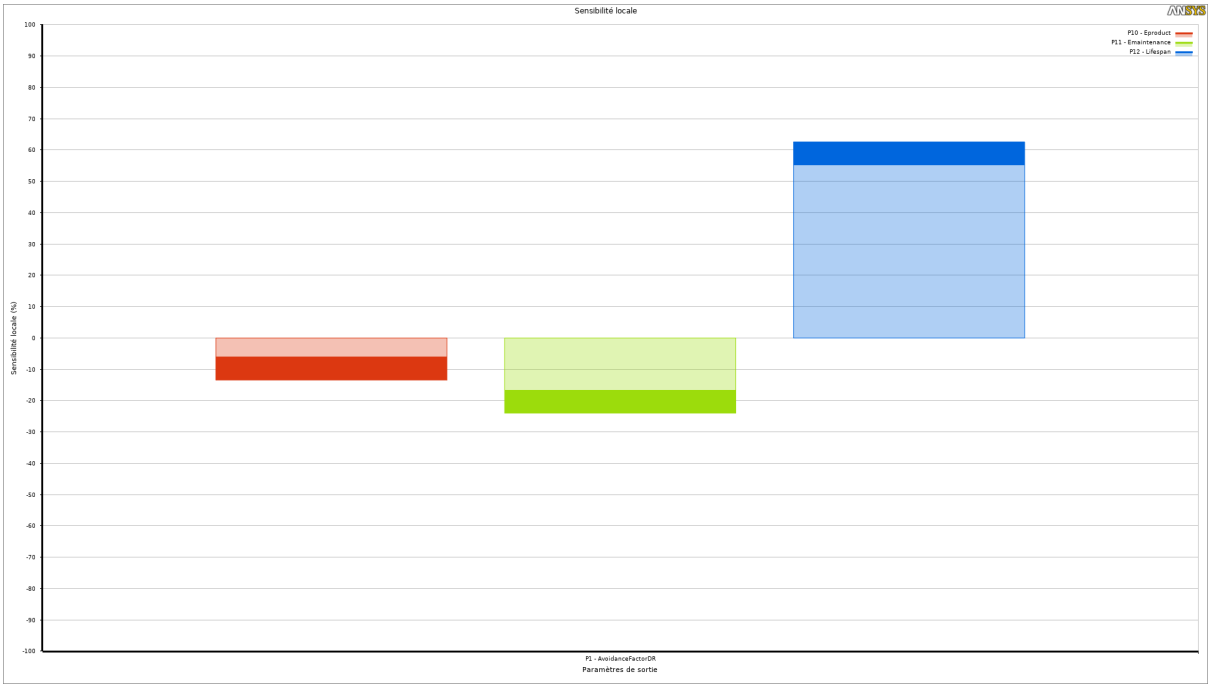
SPORT	CATEGORY	**Avoidance factor (tCO2eq/qty)**
INTERMODAL CYCLING	CLASSIQUE 20"	**1,15**
	ELECTRIQUE 20"	**2,08**
URBAN CYCLING	LONGTAIL	**4,31**
	E-BIKE CONNECTED	**2,89**
	TRAD BIKE	**1,52**
	LONG DISTANCE	**1,94**
	E-BIKE	**1,50**
SCOOTER	MECANIQUE	**0,34**
	ELECTRIQUE	**0,60**
MOUNTAIN CYCLING	MUSCULAIRE	**0,15**
	ELECTRIQUE	**0,60**
HYBRID CYCLING	Trekking bikes	**0,59**
	Trekking e-bikes	**1,16**
	Travel bikes	**0,97**
	Gravel bikes	**1,15**

[8] Dispositif des certificats d'économie d'énergie

Taking the example of the "Trekking e-bikes" category, in the year of purchase of the bike, the customer contributes to avoiding 120 kgCO2eq, and in the tenth year, only 80 kgCO2eq will be considered.

Sensitivity analysis

Emissions linked to the solution may vary according to the service life considered, as well as the initial impact of the product and the impact of repairs. Thanks to numerical simulation, we have been able to determine which of these parameters has the greatest impact on the avoidance factor. This is shown in the graph below, which illustrates the local sensitivity of each parameter.



In red, the impact of the initial product, in green the impact of maintenance and in blue the service life.

We can draw some conclusions from this numerical simulation:

- Logically, the greater the impact of the solution (initial product and maintenance), the lower the avoidance factor. Conversely, the longer the service life, the higher the avoidance factor.
- Service life has the greatest influence on the avoidance factor. It's a very complicated parameter to determine, and depends on many factors.

In the worst-case scenario, i.e. a product and maintenance impact twice as high as the values considered, and with a lifespan of 5 years, the avoidance factor is 0.5 tCO2eq avoided for a traditional muscular city bike. And 1.9 tCO2eq avoided when the parameters take on the values most favorable to avoidance. The table below shows the various parameters calculated and the associated avoidance factors.

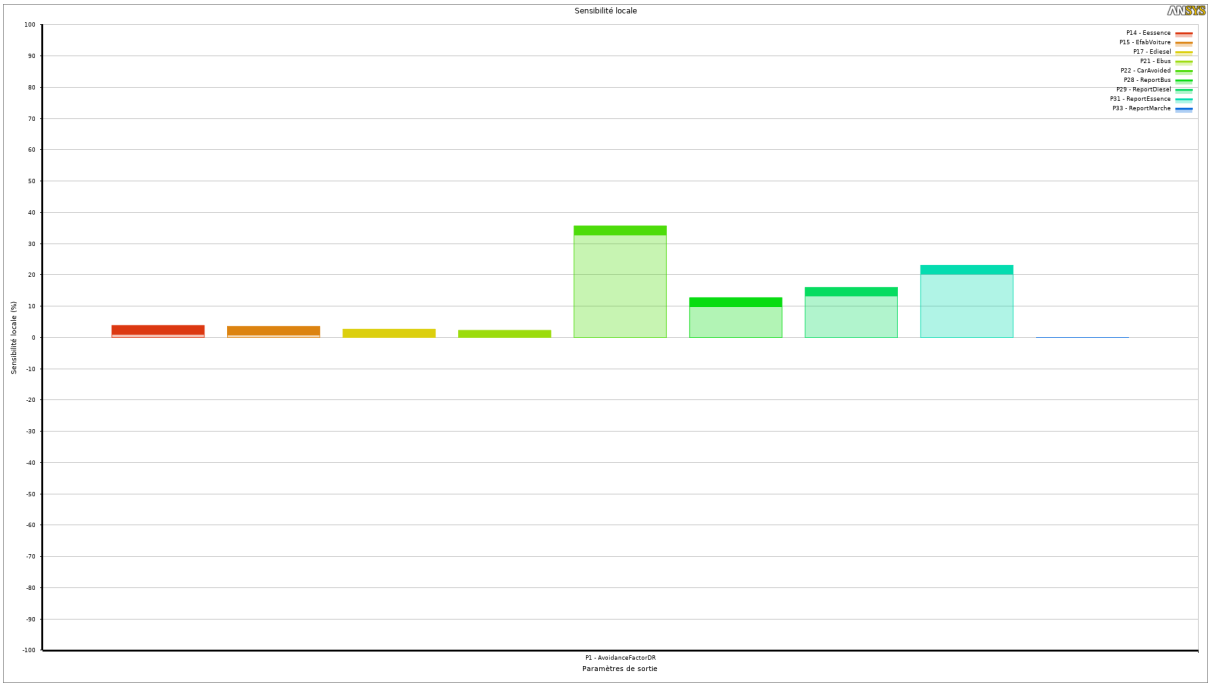
Table de Arborescence A11 : Recherche min/max					
	A	B	C	D	E
1	Nom	P10 - Eproduct	P11 - Emaintenance	P12 - Lifespan	P1 - AvoidanceFactorDR
2	⊟ Minimums des paramètres de sortie				
3	P1 - AvoidanceFactorDR	307	547	5	0,55184
4	⊟ Maximums de paramètres de sortie				
5	P1 - AvoidanceFactorDR	77	136	15	1,946

Even in the worst-case scenario, there are significant avoided emissions. It can therefore be stated that the sale of conventional bicycles contributes to the avoidance of emissions. In order to refine the result in a second iteration, particular attention will need to be paid to product lifespan.

There are three types of parameters in the reference scenario:

- emission factors for transport, which are likely to decarbonize in the future
- the number of kilometers shifted by each mode of transport
- parameters linked to the car, i.e. its carbon intensity and the percentage of people forgoing the purchase of a car.

Of these three types of factor, the local sensitivity analysis shows that the first type does not significantly vary the avoidance factor; nor does the carbon intensity of car manufacture (the first four columns of the graph below).



All the parameters vary the avoidance factor in the same direction, i.e. when the percentage of car avoidance increases, so does the avoidance factor.

In order of importance, the avoidance factor is most influenced by the percentage of car avoidance (5th column), followed by diesel car modal shift, gasoline car modal shift and finally bus modal shift. Modal shift to walking does not influence the result.

The worst-case and best-case scenarios are shown in the table below, with avoidance factors ranging from 0.17 tCO2eq avoided to 2.97 tCO2eq avoided.

Table de Arborescence A17 : Recherche min/max

	A	B	C	D	E	F	G	H	I	J	K
1	Nom	P14 - Eessence	P15 - EfabVoiture	P17 - Ediesel	P21 - Ebus	P22 - CarAvoided	P28 - ReportBus	P29 - ReportDiesel	P31 - ReportEssence	P33 - ReportMarche	P1 - AvoidanceFactorDR
2	⊟ Minimums des paramètres de sortie										
3	P1 - AvoidanceFactorDR	0,15435	7,6832	0,14508	0,1778	0	75	95	130	119,77	0,17343
4	⊟ Maximums de paramètres de sortie										
5	P1 - AvoidanceFactorDR	0,18865	9,0024	0,17733	0,21731	0,15	260	380	516	123,51	2,9705

In the worst-case scenario, which includes no renunciation of car purchase and half as much modal shift as the current scenario, emissions are still avoided, albeit at a relatively low level. In a second iteration, it will be necessary to refine the car renunciation parameter.

V. Computation of the claim

A. Type of claim

Once the products are sold, Décathlon no longer has any control over how the product is used, and there are no long-term post-purchase services associated with each product. Climate dividends are calculated over the entire life of the product and applied at the time of sale. This is a **forward-looking claim**.

The claim will be made in year N for products from year N-1. For example, in 2023, the year of the first climate dividend claim, the quantities considered will be those of 2022.

B. Attribution key

Optional document

Purpose: Justification for the attribution key and the stakeholders involvement.

Name of the supporting document: CLAIM AVOIDED EMISSIONS

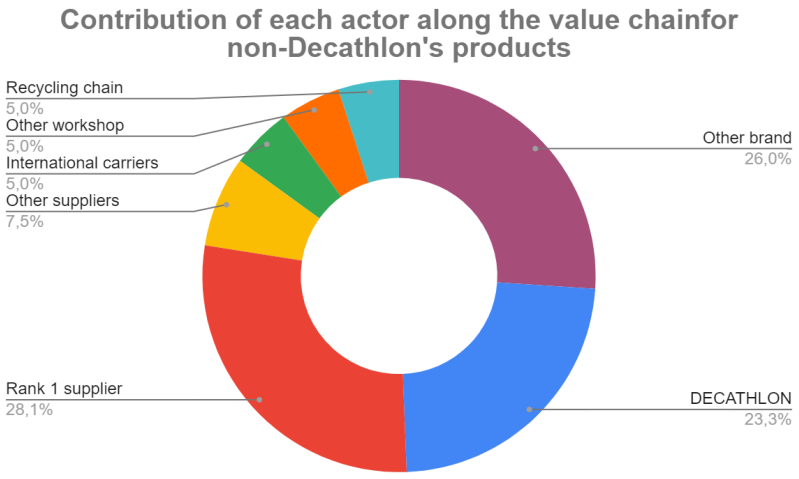
Description: See tab “ATTRIBUTION” for non-Decathlon’s products. For each step a percentage of contribution has been defined for the main stakeholder and the other stakeholders.

There are 6 steps along the value chain of a product :

- Design
- Industrialization
- Distribution
- Commercialization
- Use
- End-of-life

Decathlon is the main contributor to the value chain, and plays an important role in the selection of suppliers through its purchasing policy. Decathlon also acts as a conductor of the entire value chain. Given the importance of Decathlon in the value chain, and the fact that other contributors to the value chain do not calculate avoided emissions or climate dividends, Decathlon reports 100% of the emissions avoided by its own products, following the Climate Dividends Protocol view.

For products that are not Decathlon, i.e. the other brands we sell or the marketplace, we calculated an attribution key. For each step a percentage of contribution has been defined in consistency with the importance of each stage in the value chain. These values are based solely on Decathlon's opinion, and not on the opinions of all the players in the value chain. Next, the main player in each stage or sub-stage is considered to contribute 75% and the other players 25%. By cross-referencing all the data, we arrive at the following breakdown:



In conclusion for non-Decathlon’s products, the key attribution is 23% for Decathlon. The value has been defined solely by Decathlon.

C. Discount rate

Mandatory document

Purpose: Calculation details with discount rate

Name of the supporting document: AVOIDANCE FACTORS V2_2023_03

Description: See “DETAILED RESULTS”, line 83

A discount rate of 4% is applied directly to the emissions factor. From a climate dividend claim point of view, there is no difference between applying the discount rate to the final result or to the avoidance factor. From the point of view of using the data internally, it is preferable to have the avoidance factor directly in our tools, which includes uncertainty about changes in user behavior in the years to come, as well as the fact that it is better to avoid emissions now than in 10 years' time.

D. Validity period

The general principle of the methodology will not change in the years to come, as the sale of mobility products is not an innovation in a sector on the move. We intend to apply the duration recommended by the climate dividend protocol and validate the methodology for a 3-year period for this first pilot phase.

However, certain parameters will need to be updated on a more regular basis. We wish to update the following parameters:

- LCA of representative products in each category
- kilometers replaced following the purchase of a mobility product
- share of car purchase renunciations.

Decathlon undertakes to update the parameters for the dividend claim in 2025 on the year 2024.

VI. First issuance

A. Year of the first claim

The first claim is for 2022, declared in 2023.

B. Monitored data for the first year

Mandatory document

Purpose: Proof of activity

Name of the supporting document: Mobility Family & Conception Code

Description: Extract from AFO (internal tool), by model code for bikes and scooters. Categorization by family (Merchandise category) and customer zone sales (Sales Organization).

Thanks to internal tools, we have access to all quantities sold for each model code and for each sport family. The following table shows the correspondence between Decathlon product families and avoidance factors by category.

Family ID	Description	Sport	Category for avoidance	Avoidance factor (tCO2eq avoided /qty)
11036	Avoidance factor for folding bike, muscular type	INTERMODAL CYCLING	CLASSIQUE 20"	1,2
35024	Avoidance factor for folding bike, electric type	INTERMODAL CYCLING	ELECTRIQUE 20"	2,1
34909	Avoidance factor for cargobike, electric type	URBAN CYCLING	LONGTAIL	4,3
	Avoidance factor for e-bike connected to an app	URBAN CYCLING	E-BIKE CONNECTED	2,9
11038	Avoidance factor for urban bike, muscular type	URBAN CYCLING	TRAD BIKE	1,5
34128	Avoidance factor for long distance bike, electric type	URBAN CYCLING	E-BIKE	1,5
5035	Avoidance factor for long distance bike, muscular type	URBAN CYCLING	LONG DISTANCE	1,9
11034	Avoidance factor for urban bike, electric type	URBAN CYCLING	E-BIKE	1,5
34470	Avoidance factor for urban speed bike, muscular type	URBAN CYCLING	TRAD BIKE	1,5
34660	Avoidance factor for urban scooter, electric type	SCOOTER	ELECTRIQUE	0,6

5224	Avoidance factor for urban scooter, muscular type	SCOOTER	MECANIQUE	0,3
34104	Avoidance factor for trekking bike, electric type	HYBRID CYCLING	Trekking e-bikes	1,2
35132	Avoidance factor for gravel bike, muscular type	HYBRID CYCLING	Gravel bikes	1,1
34356	Avoidance factor for travel bike, muscular type	HYBRID CYCLING	Travel bikes	1,0
3869	Avoidance factor for trekking bike, muscular type	HYBRID CYCLING	Trekking bikes	0,6
	Avoidance factor for mountain bike, muscular type	MOUNTAIN CYCLING	MUSCULAIRE	0,15
	Avoidance factor for mountain bike, electric type	MOUNTAIN CYCLING	ELECTRIQUE	0,60

It should be noted that connected electric bicycles are not yet in a specific category, but in the 11034 family. For the claim, therefore, we need to remove the quantities of connected electric bikes from this category and assign the appropriate avoidance factor.

Level-entry mountain bike and e-bikes are not in a specific family, therefore, we need to look at the sales of each specific generic code for these two categories.

We monitor quantities of Decathlon's products and non-Decathlon's products in order to apply the different attribution keys.

To calculate Climate Dividends, we take into account the quantities of bikes sold in 2022 for each family, and thanks to the table above, we associate an avoidance factor for each family. By multiplying the quantities by the avoidance factor, we have the Climate Dividends for the first year.

C. Impact for the first year

For 2022, we estimate avoided emissions at **1,072,087 tCO2eq**. The discount rate imputes 231,131 tCO2eq to Décathlon's contribution to avoided emissions.