



MEASURE, REDUCE, REPORT.

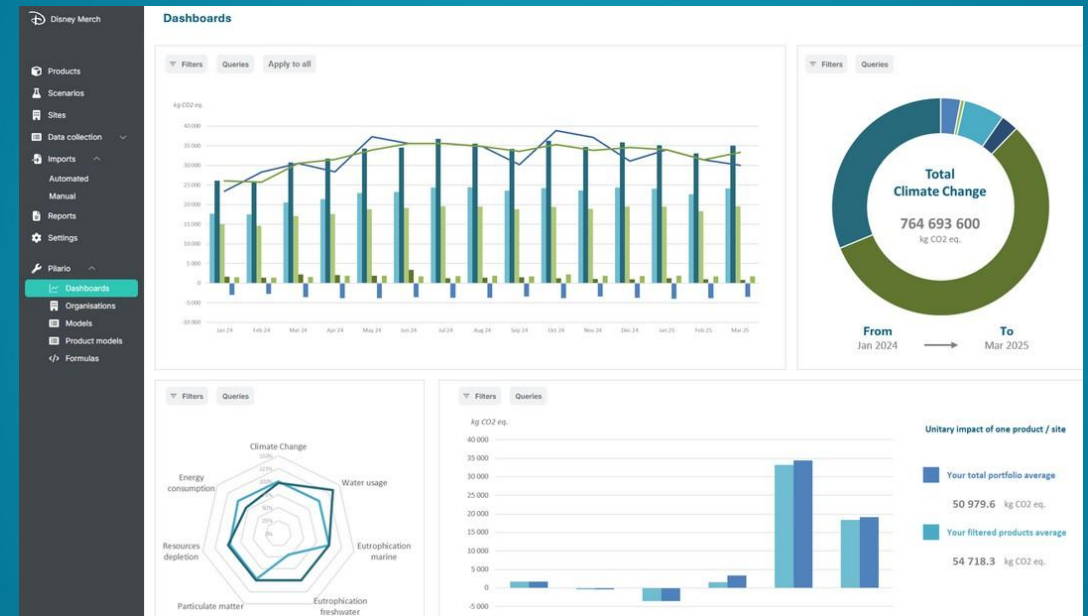
Sustainability design and reporting software.



Trusted by:



gerresheimer



ABOUT US



Our mission is to accelerate a sustainable future by helping companies make better environmental decisions.

With a legacy of over 33 years in LCA, we've got the best tools on the market to achieve this.



PARTNERSHIPS



Ecobeautyscore

We supply the technology for EcoBeautyScore to offer their members a unified LCA and “eco-scoring” tool.



Institute for sustainable packaging

The KIDV uses our technology to provide a “light” LCA and recycling tool for all companies in the Netherlands



PETCORE EUROPE

Pilario built a specific LCA tool for the PET industry, to provide to members of PETCORE Europe.



UNESDA

We supply the members of UNESDA an LCA software for their shadow-PEFCR



The Brewers of Europe

Pilario has been offering members of the Brewers of Europe an LCA tool since 2020, using the beer PEFCR methodology.



Microsoft

We partner with Microsoft to complement their Sustainability Cloud solution, which lacks LCA functionality.

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WHAT IS AN LCA?



PETCORE MODEL – MEASURE

The screenshot displays the PETCORE MODEL – MEASURE interface. The top navigation bar includes a breadcrumb trail: < 5/18 > PET bottle - 0,5L - single use - carbonated, along with a 'Version history' link and 'Show results' and 'Actions' buttons. A search bar is located on the left. The left sidebar contains a tree view with categories: Description, Composition (Bottle body, Bottle cap, Label), PET production (highlighted), Supply transport (Bottle body, Bottle cap, Label), and Manufacturing (Bottle body, Preform injection, blow molding, Bottle cap, PP injection). The main content area is titled 'PET production (100% virgin)' and contains two sections: 'Polyethylene teraphthalate description' and 'Raw materials'. The 'Polyethylene teraphthalate description' section includes fields for 'PET share' (100 %), 'Type of PET production' (PET - Specific production), 'Country (or region) of production' (Europe), and 'Specific electricity mix' (False). The 'Raw materials' section includes fields for 'PTA weight' (0.86 kg / kg PET), 'MEG fossil weight' (0.34 kg / kg PET), 'IPA weight' (0 kg / kg PET), and 'DEG weight' (0 kg / kg PET). A blue question mark icon is visible next to the 'IPA weight' field.



A variety of packaging materials included (plastics, glass, metals, etc)

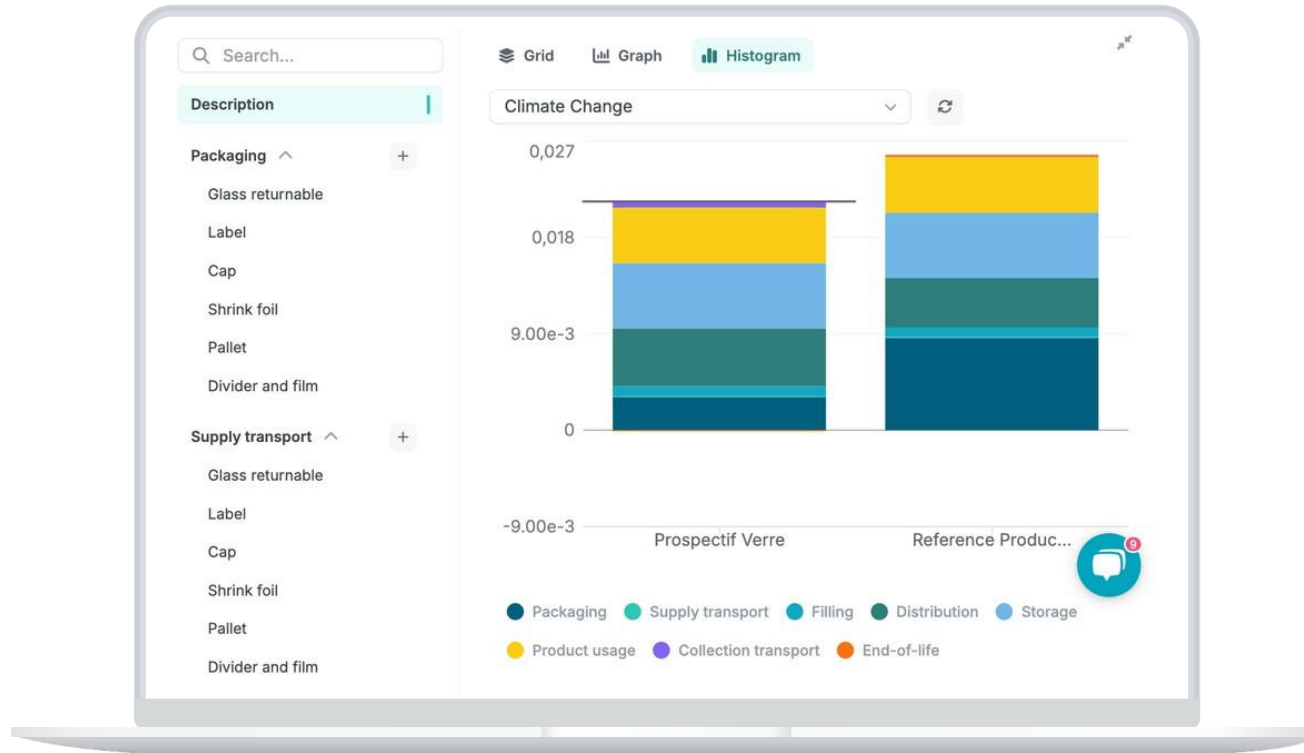


Add your own primary data, such as material, energy and recycled %



Use third-party verified average data for data gaps

PETCORE MODEL – REDUCE

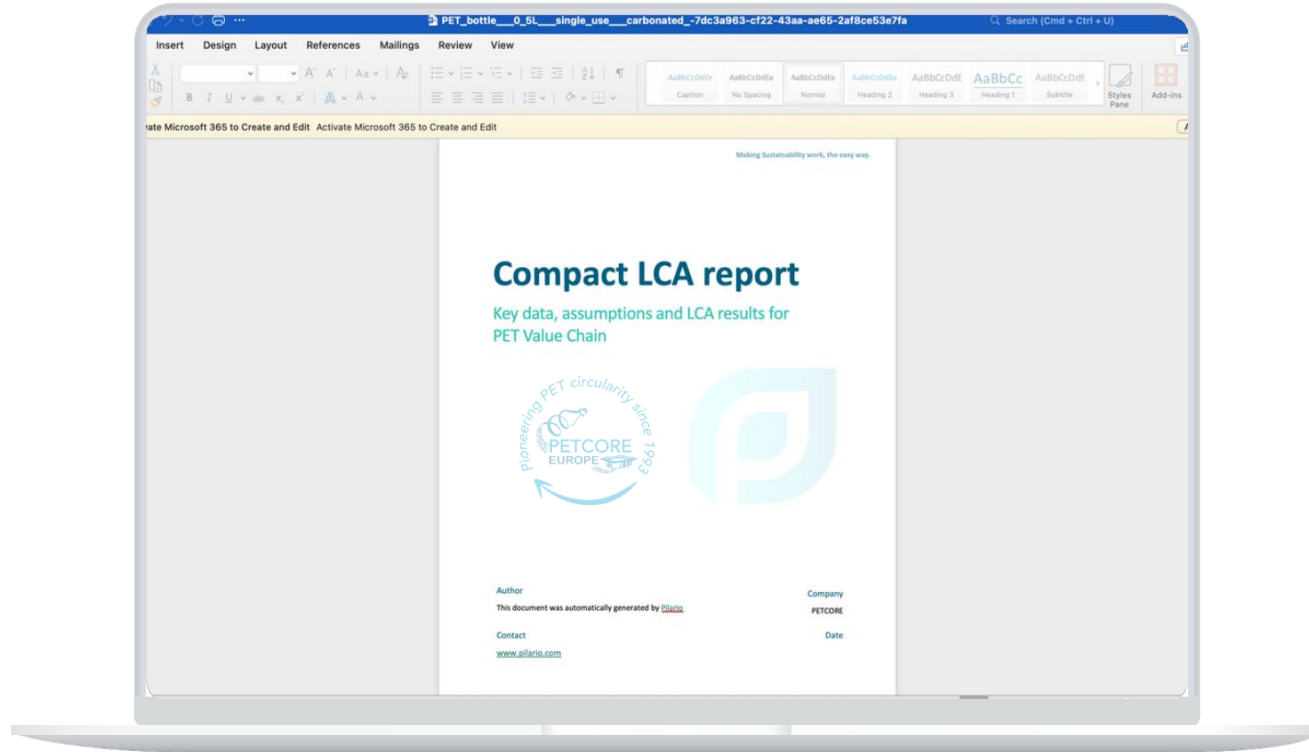


Identify hotspots through scenario testing

Implement reduction strategies through ecodesign

Get insights for your entire portfolio

PETCORE MODEL – REPORT



Confidently share results
across B2B value chain



Automatic compact LCA
report generation



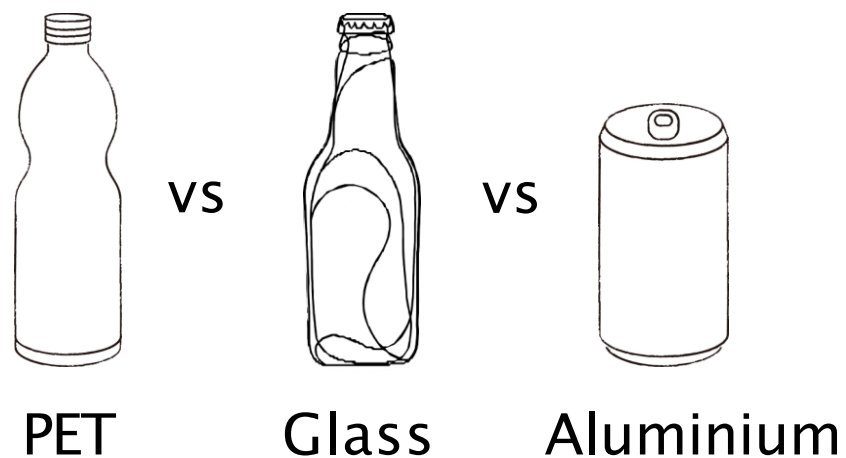
Easily verify LCA results for
public claims

SCENARIOS

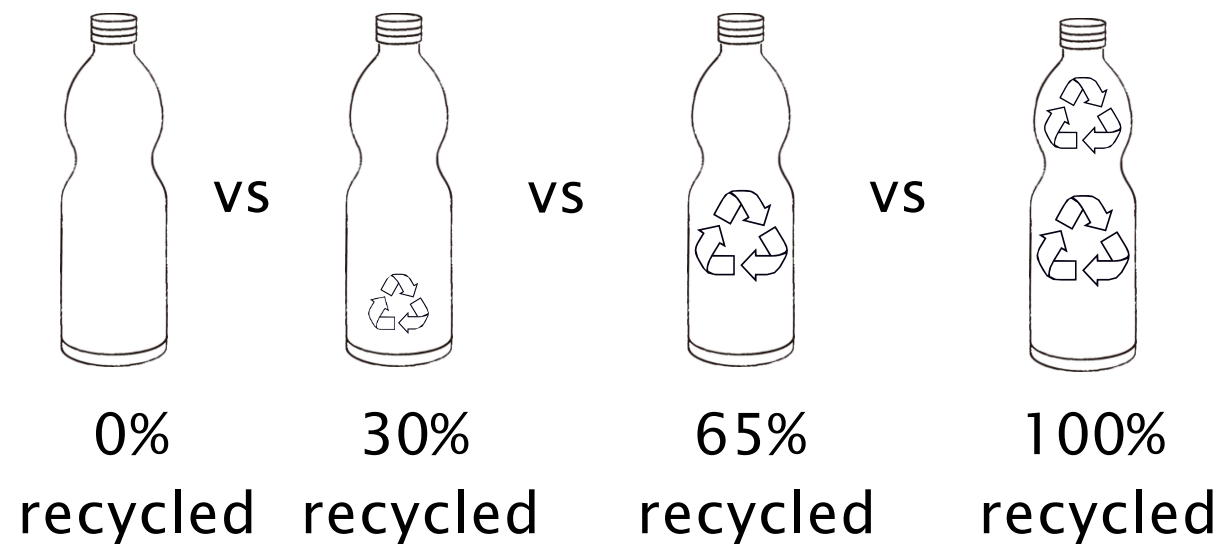


SCENARIOS

1. Material comparisons



2. Recycled content



SCENARIOS

1. Material comparisons



VS



VS



PET

Glass

Aluminium

2. Recycled content



VS



VS



VS



0%

30%

65%

100%

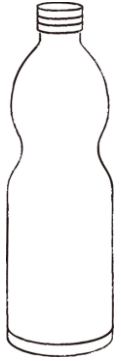
recycled

recycled

recycled

recycled

SCENARIO 1: MATERIAL COMPARISON



PET bottle

- **0,5L carbonated**
 - 21g PET 100% virgin
 - 4g PP cap
 - 3g LDPE label
- **1L non-carbonated**
 - 25g PET 100% virgin
 - 4g PP cap
 - 3g LDPE label



Glass bottle

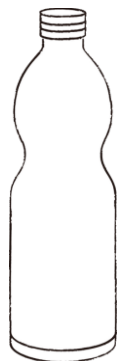
- **0,25L returnable**
 - 210g glass
 - 2,1g steel cap
 - 2 uses
- **0,25L non-returnable**
 - 165g glass
 - 2,1g steel cap
- **0,5L non-returnable**
 - 400g glass
 - 2,1g steel cap



Aluminium can

- **0,33L**
 - 13g
- **0,5L**
 - 16g

SCENARIO 1: MATERIAL COMPARISON



PET bottle

- **0,5L carbonated**
 - 21g PET 100% virgin
 - 4g PP cap
 - 3g LDPE label
- **1L non-carbonated**
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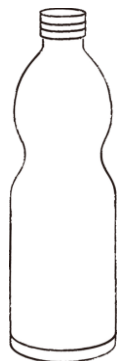


Aluminium can

- **0,33L**
 - 13g
- **0,5L**
 - 16g

*Assumptions were made for the weight of the different components
Rest of the LCA was built using default values available in the software*

SCENARIO 1: MATERIAL COMPARISON



PET bottle

- **0,5L carbonated**
 - 21g PET 100% virgin
 - 4g PP cap
 - 3g LDPE label
- **1L non-carbonated**
 - 25g PET 100% virgin
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 - 3g LDPE label



Glass bottle

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 - 210g glass
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- **0,25L non-returnable**
 - 165g glass
 - 2,1g steel cap



Aluminium can

- **0,33L**
 - 13g
- **0,5L**
 - 16g

Functional unit: **1 L** of product
transported to the end consumer

Calculations were made for the weight of the different components
The LCA was built using values available in the software

SCENARIO 1: MATERIAL COMPARISON

Step 1: establish a functional unit for the assessment

e.g. 0,5 L PET bottle requires 2 bottles to perform the function

^

Functional Unit and reference product

Primary packaging volume ⓘ	<input type="text" value="0.5"/>	<input type="text" value="l"/>
Primary packaging's content weight ⓘ	<input type="text" value="500"/>	<input type="text" value="g"/>
Functional unit choice ⓘ	<input type="text" value="Per litre of primary packaging unit"/>	
Reference flow ⓘ	<input type="text" value="2"/>	<input type="text" value="primary packaging unit / FU"/>
LCA scope	<input type="text" value="Cradle to grave"/>	

?

SCENARIO 1: MATERIAL COMPARISON

Step 2: input raw material data in the software

e.g. 0,5 L PET bottle requires 21 grams of PET

Description

Composition ^

Bottle body |

Bottle cap

Label

PET production ^

PET production (100...

Supply transport ^

Bottle body

Bottle cap

Label

Manufacturing ^

Bottle body

Preform injection

Bottle body

Component description

Metals

Plastics

PET weight ⓘ	<input type="text" value="21"/>	g	PET recycled content ⓘ	<input type="text" value=""/>	%
PP weight	<input type="text" value="0"/>	g	PP recycled content	<input type="text" value="0"/>	%
HDPE weight	<input type="text" value="0"/>	g	HDPE recycled content	<input type="text" value="0"/>	%
LDPE weight	<input type="text" value="0"/>	g	LDPE recycled content	<input type="text" value="0"/>	%
PS weight	<input type="text" value="0"/>	g	PS recycled content	<input type="text" value="0"/>	%

SCENARIO 1: MATERIAL COMPARISON

Step 3: input PET data in the software

Add information about how the PET is produced. Average values available in the software.

Q Search...

Description

Composition ^

Bottle body

Bottle cap

Label

PET production ^

PET production (100...

Supply transport ^

Bottle body

Bottle cap

Label

Manufacturing ^

Bottle body

Preform injection

blow molding

Bottle cap

PP injection

Label

Extrusion

PET production (100% virgin) ✎

^ Polyethylene teraphthalate description

PET share ⓘ100%

Type of PET production ⓘPET - Specific production

Country (or region) of production ⓘEurope

Specific electricity mix ⓘFalse

^ Raw materials

PTA weight0.86kg / kg PET

MEG fossil weight0.34kg / kg PET

IPA weight0kg / kg PET

DEG weight0kg / kg PET

Sb Glycoliat weight0kg / kg PET

SCENARIO 1: MATERIAL COMPARISON

Step 4: input product manufacturing data in the software

Add information about how the bottle is produced using average or own data.

Q Search...

Description

Composition ^

Bottle body

Bottle cap

Label

PET production ^

PET production (100...

Supply transport ^

Bottle body

Bottle cap

Label

Manufacturing ^

Bottle body

Preform injection |

blow molding

Bottle cap

PP injection

Label

Extrusion

Preform injection ✎

^ Manufacturing step description

Manufacturing process ⓘ

Your specific manufacturing factory ⓘ

Weight in (entering the step) ⓘ

Manufacturing loss ⓘ

Manufacturing location

Specific electricity mix

Activation of transport trip to next stage ⓘ

^ Energy consumption

Natural gas consumption

LPG consumption

PET preform injection x ^

Steel closure

PET masterbatch

PET preform injection

PET bottle blow moulding

PET tray sheet extrusion

PET tray sheet co-extrusion

PET tray lamination

False

False

4.4391 MJ/kg in

0 MJ/kg in



SCENARIO 1: MATERIAL COMPARISON

Step 5: add context to the end of life scenario

Select the primary location for end of life treatment of each component of the product.

Description

Composition ▾

PET production ▾

Supply transport ▾

Manufacturing ▾

Transport to filler

End-of-life ▴

Bottle body |
Bottle cap
Label

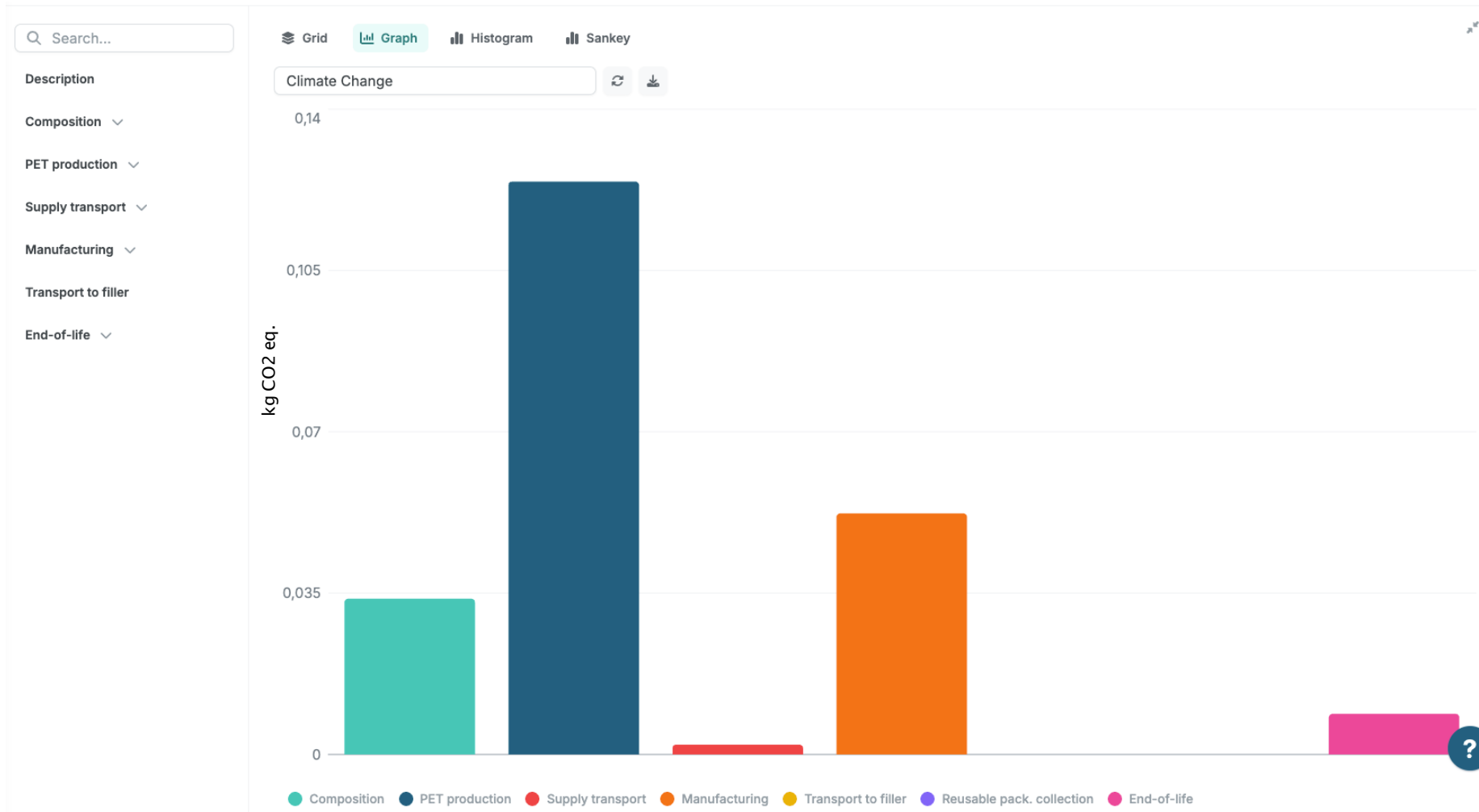
Bottle body ✎

Component description

Component weight (calculated)	21	g
Total loss (calculated) ⓘ	0.9	%
Share of packaging sold with a deposit system ⓘ	0	%
Identified main recyclable material (composition higher than 90%) ⓘ	Polyethyelene Teraphtalate (PET) ▾	
End-of-life location ⓘ	Europe ▾	
Recycling rate ⓘ	43.7	%
For not recycled share - Incineration rate ⓘ	55.6	%
For not recycled share - Landfill rate ⓘ	44.4	%

SCENARIO 1: MATERIAL COMPARISON

Step 6: look at results, identify hotspots and perform ecodesign



SCENARIO 1: MATERIAL COMPARISON – PET VS GLA SS VS ALUMINIUM PER LITRE



PET bottle

- 0,5L carbonated



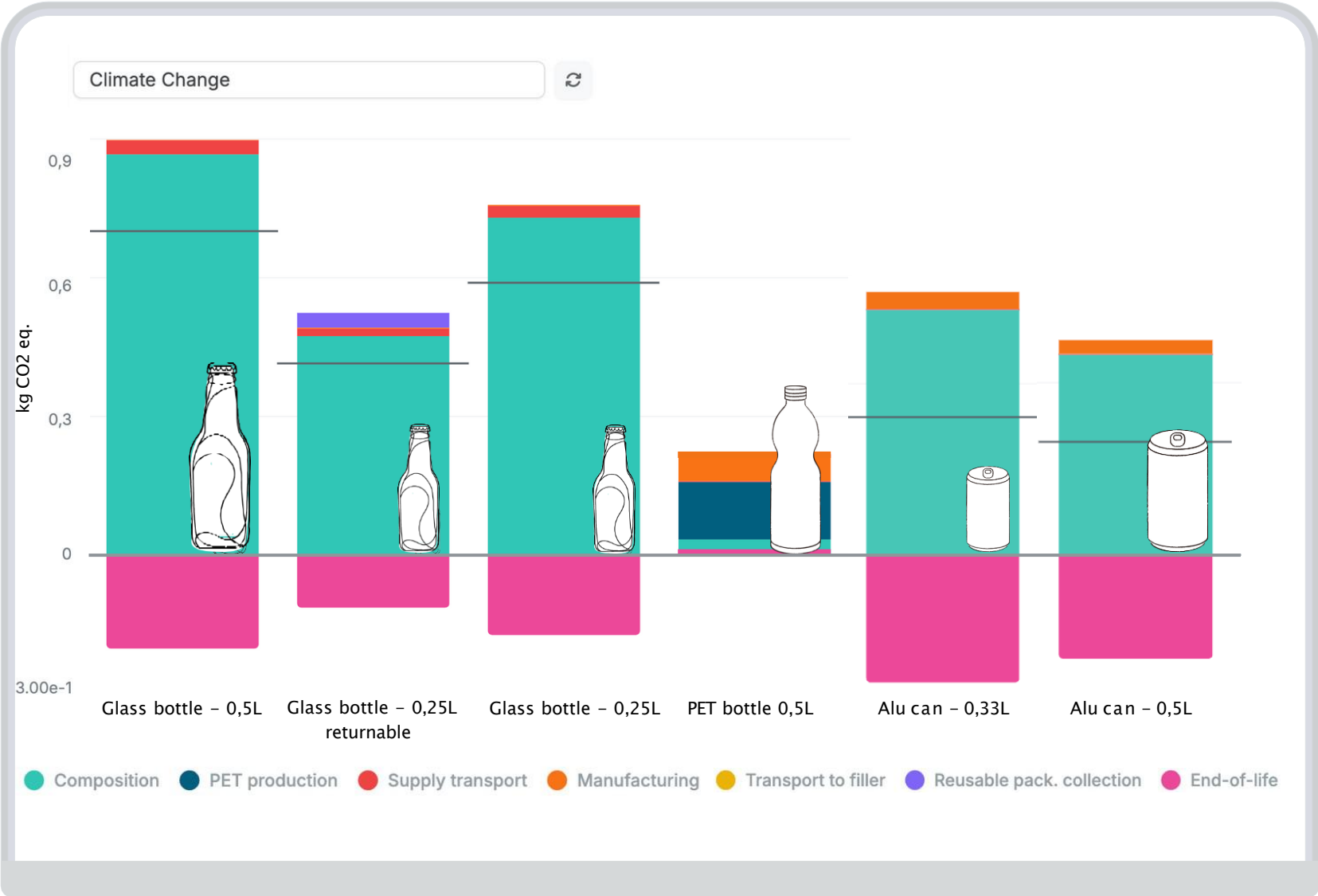
Glass bottle

- 0,5L non returnable
- 0,25L returnable & non returnable



Aluminium can

- 0,33L
- 0,5L



SCENARIO 1: MATERIAL COMPARISON – PET VS GLA SS VS ALUMINIUM PER LITRE



PET bottle

- 0,5L carbonated



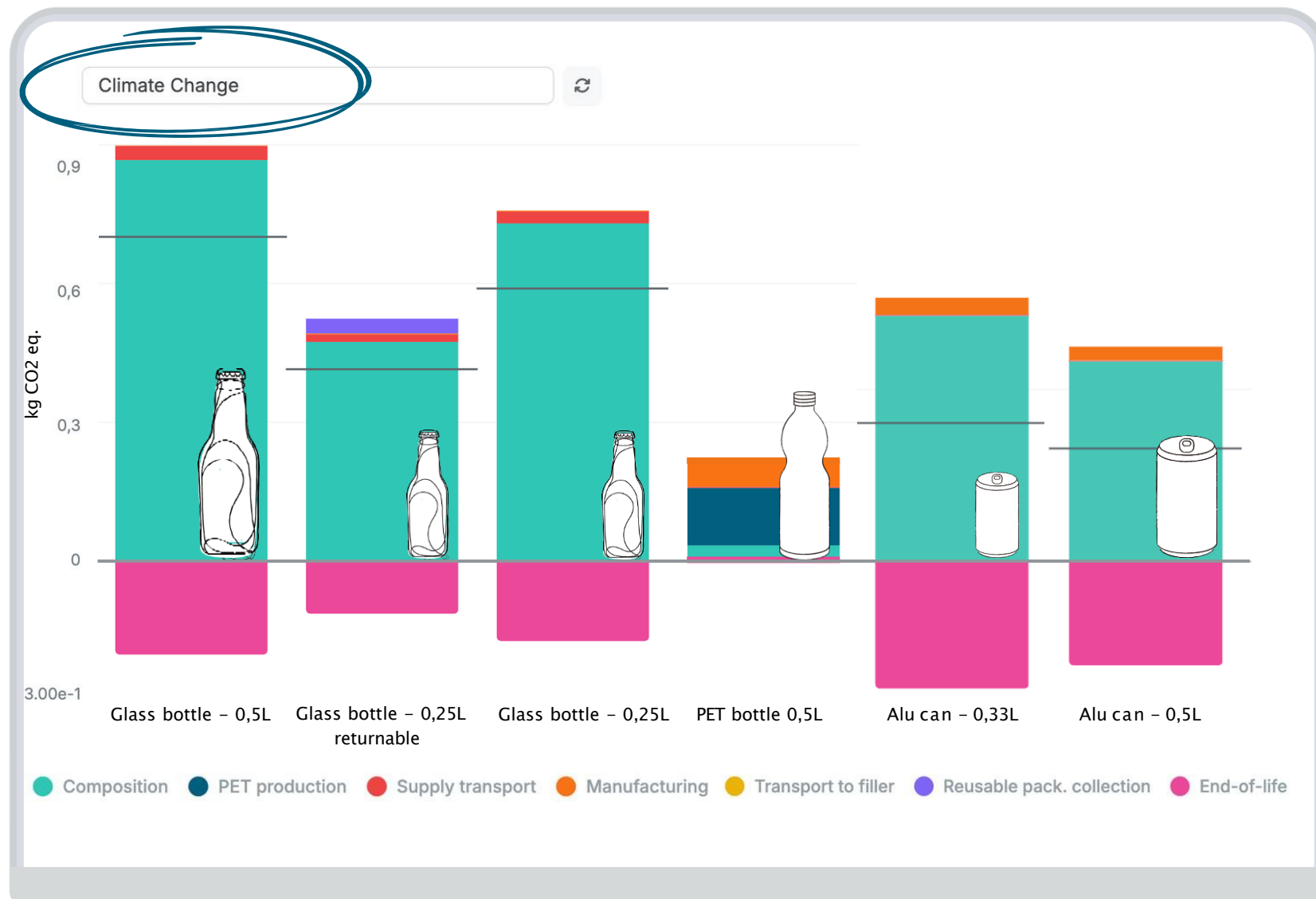
Glass bottle

- 0,5L non returnable
- 0,25L returnable & non returnable



Aluminium can

- 0,33L
- 0,5L

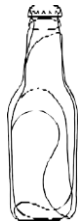


SCENARIO 1: MATERIAL COMPARISON – PET VS GLASS VS ALUMINIUM PER LITRE



PET bottle

- 0,5L carbonated



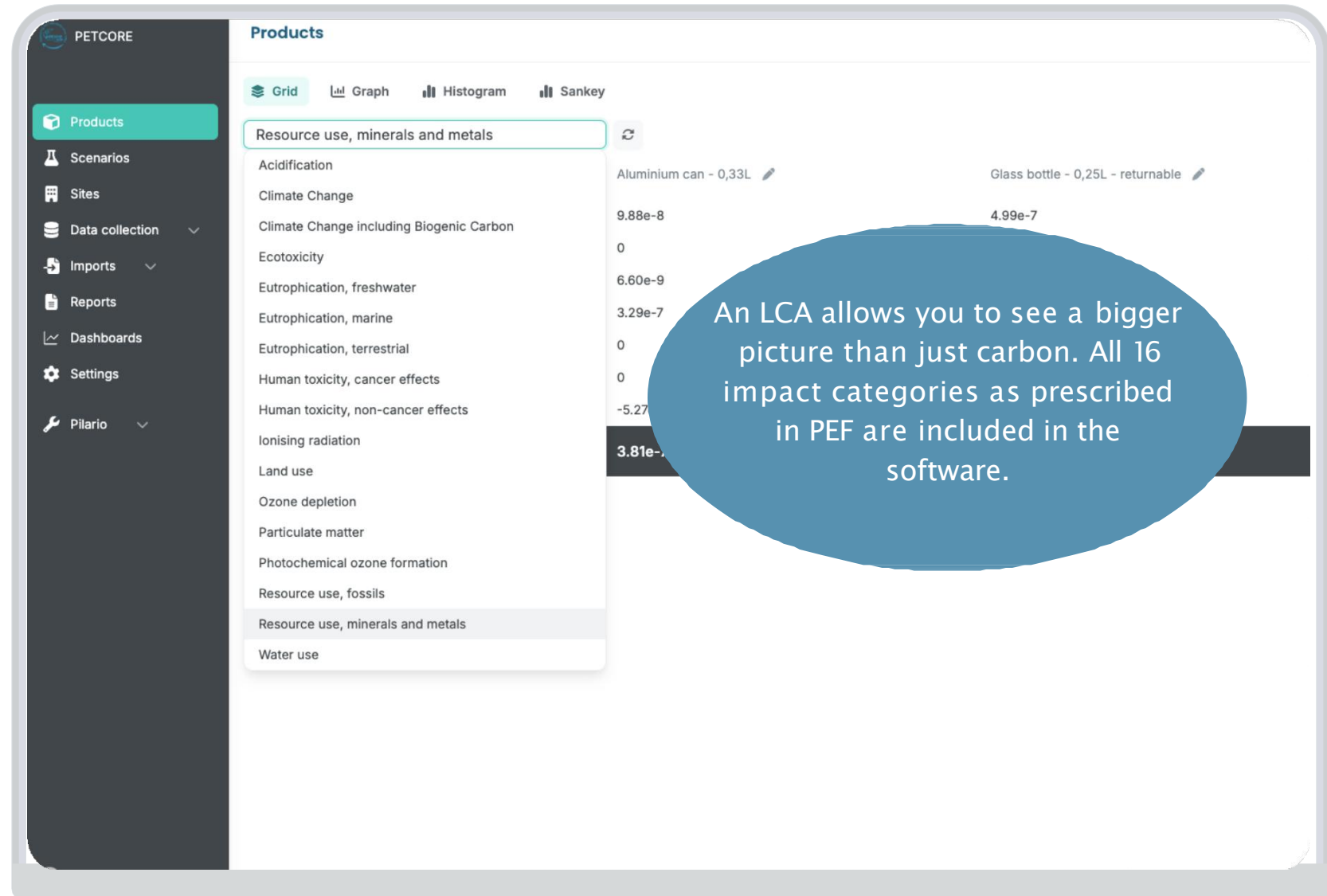
Glass bottle

- 0,5L non returnable
- 0,25L returnable & non returnable



Aluminium can

- 0,33L
- 0,5L



An LCA allows you to see a bigger picture than just carbon. All 16 impact categories as prescribed in PEF are included in the software.

SCENARIO 1: MATERIAL COMPARISON – PET VS GLASS VS ALUMINIUM PER LITRE



PET bottle

- 0,5L carbonated



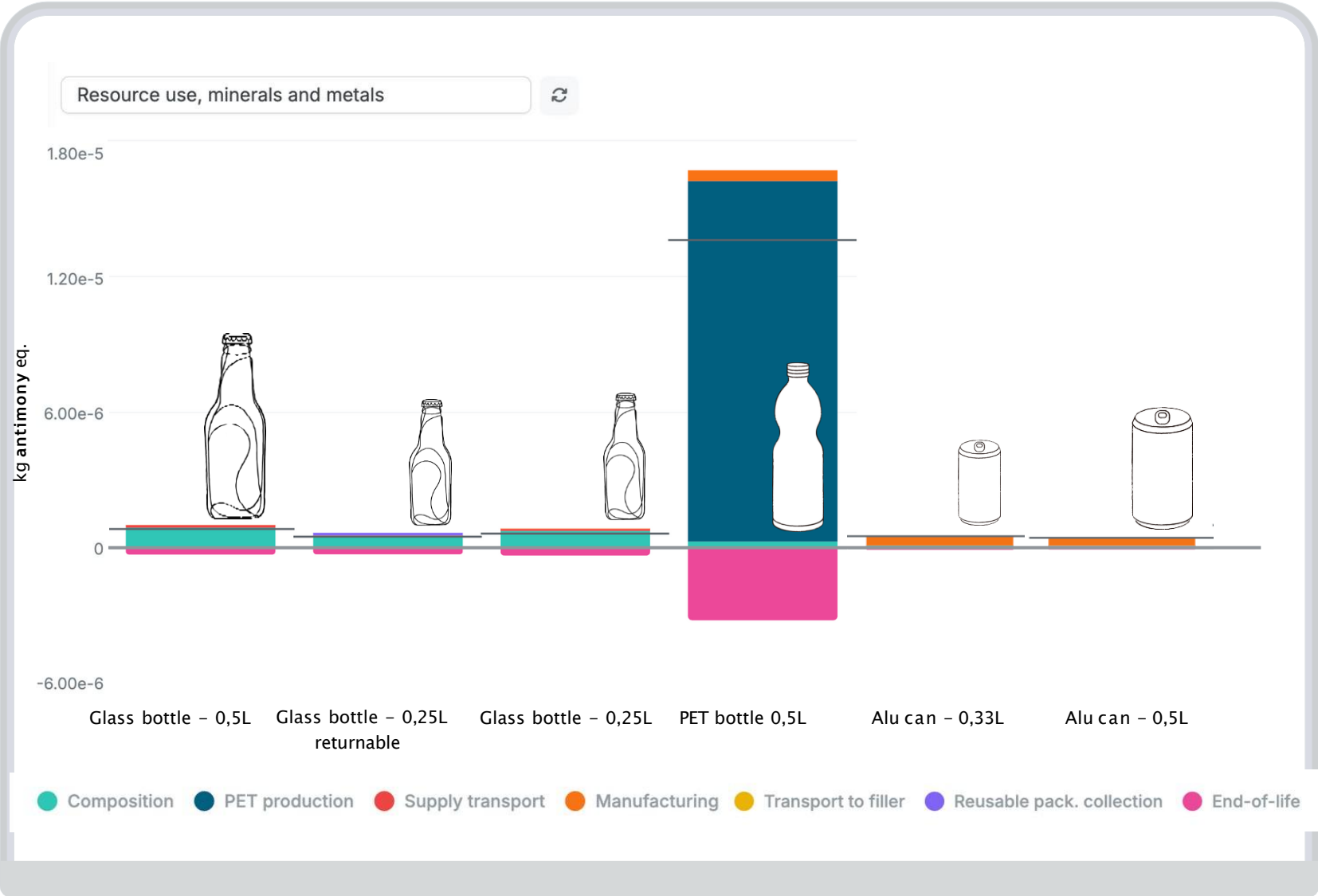
Glass bottle

- 0,5L non returnable
- 0,25L returnable & non returnable



Aluminium can

- 0,33L
- 0,5L



SCENARIO 1: MATERIAL COMPARISON – PET VS GLASS VS ALUMINIUM PER LITRE



PET bottle

- 0,5L carbonated



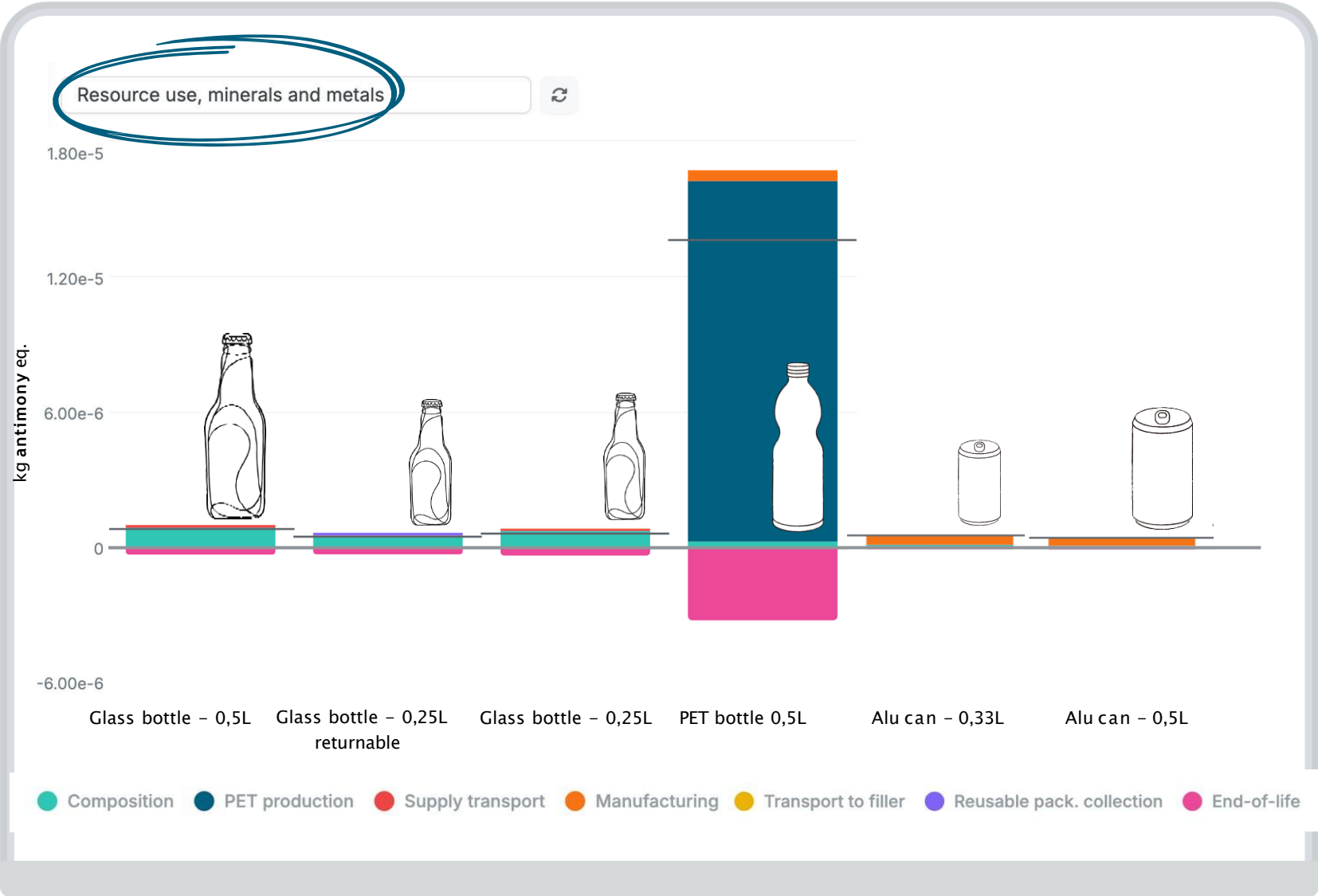
Glass bottle

- 0,5L non returnable
- 0,25L returnable & non returnable



Aluminium can

- 0,33L
- 0,5L



SCENARIO 1: MATERIAL COMPARISON – PET VS GLASS VS ALUMINIUM PER LITRE



PET bottle

- 0,5L carbonated



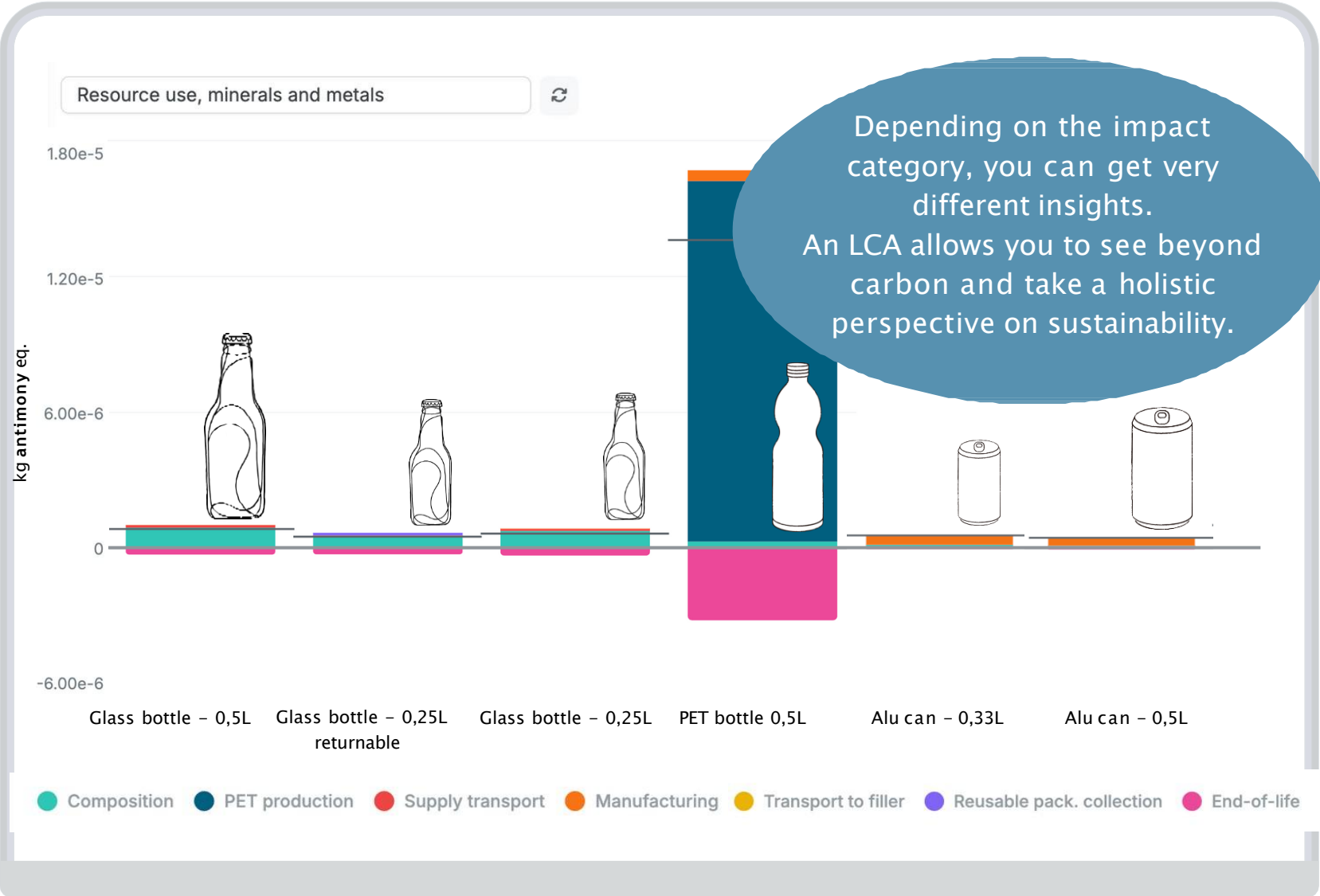
Glass bottle

- 0,5L non returnable
- 0,25L returnable & non returnable



Aluminium can

- 0,33L
- 0,5L



SCENARIO 1: MATERIAL COMPARISON – CARBONATED VS NON-CARBONATED PER LITRE



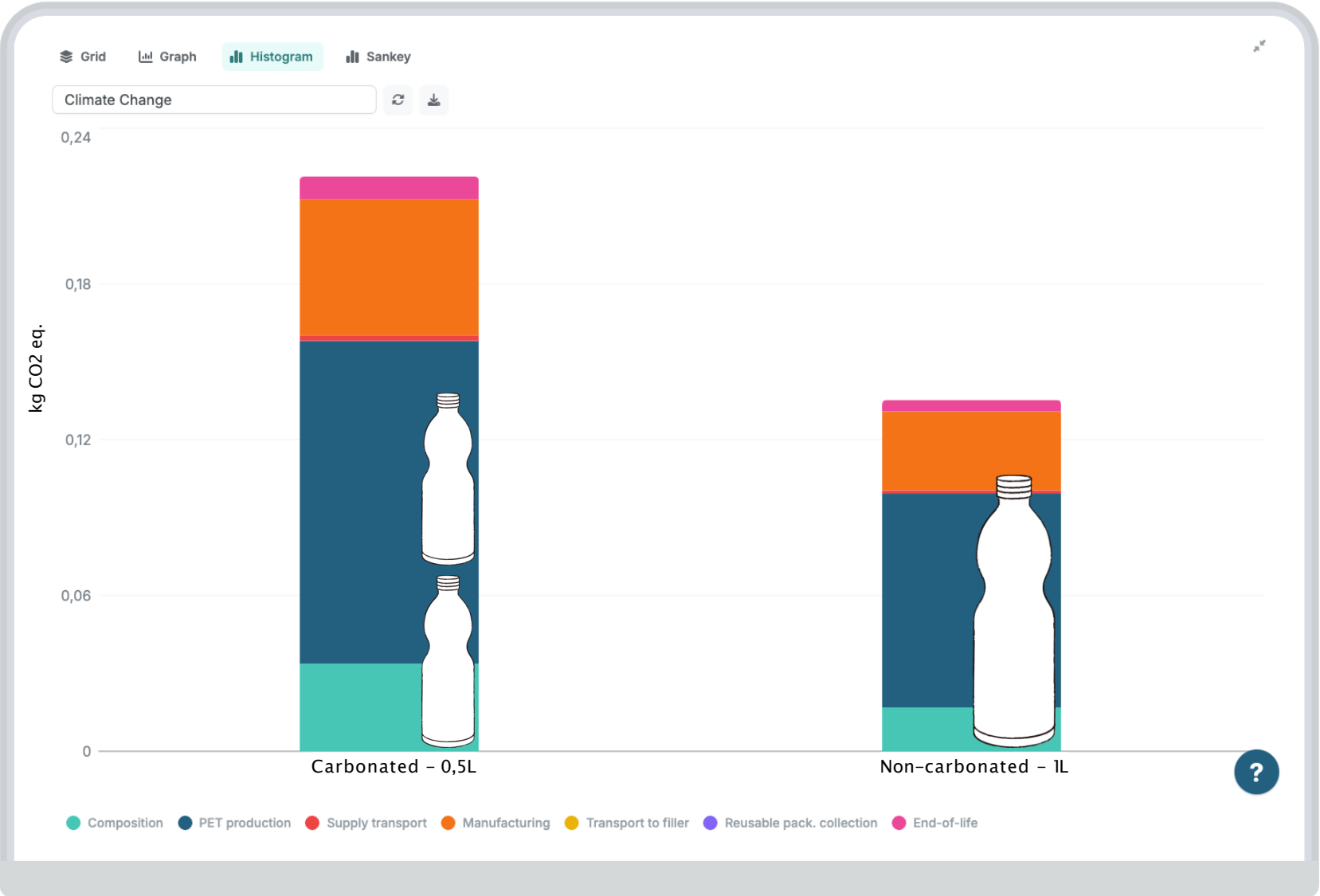
PET bottle

• 0,5L carbonated



PET bottle

• 1L non-carbonated



SCENARIOS

1. Material comparisons



VS



VS



PET

Glass

Aluminium

2. Recycled content



VS



VS



VS



0%

30%

65%

100%

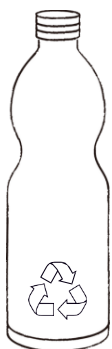
recycled

recycled

recycled

recycled

SCENARIO 2: 2030 30% VS 2040 65% RECYCLED CONTENT



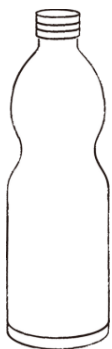
2030 - 30% recycled content

- 30% recycled PET pellets
- Generic recycling production



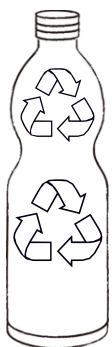
2040 - 65% recycled content

- 65% recycled PET pellets
- Generic recycling production



0% recycled content

- 100% virgin PET pellets
- Generic PET production



100% recycled content

- 100% recycled PET pellets
- Generic recycling production

- Material inputs
 - 21g PET
 - 4g PP cap
 - 3g LDPE label
- Average european recycling rates for EoL

SCENARIO 2: 2030 30% VS 2040 65% RECYCLED CONTENT



0% recycled content

- 100% virgin PET pellets
- Generic PET production



2030 - 30% recycled content

- 30% recycled PET pellets
- Generic recycling production



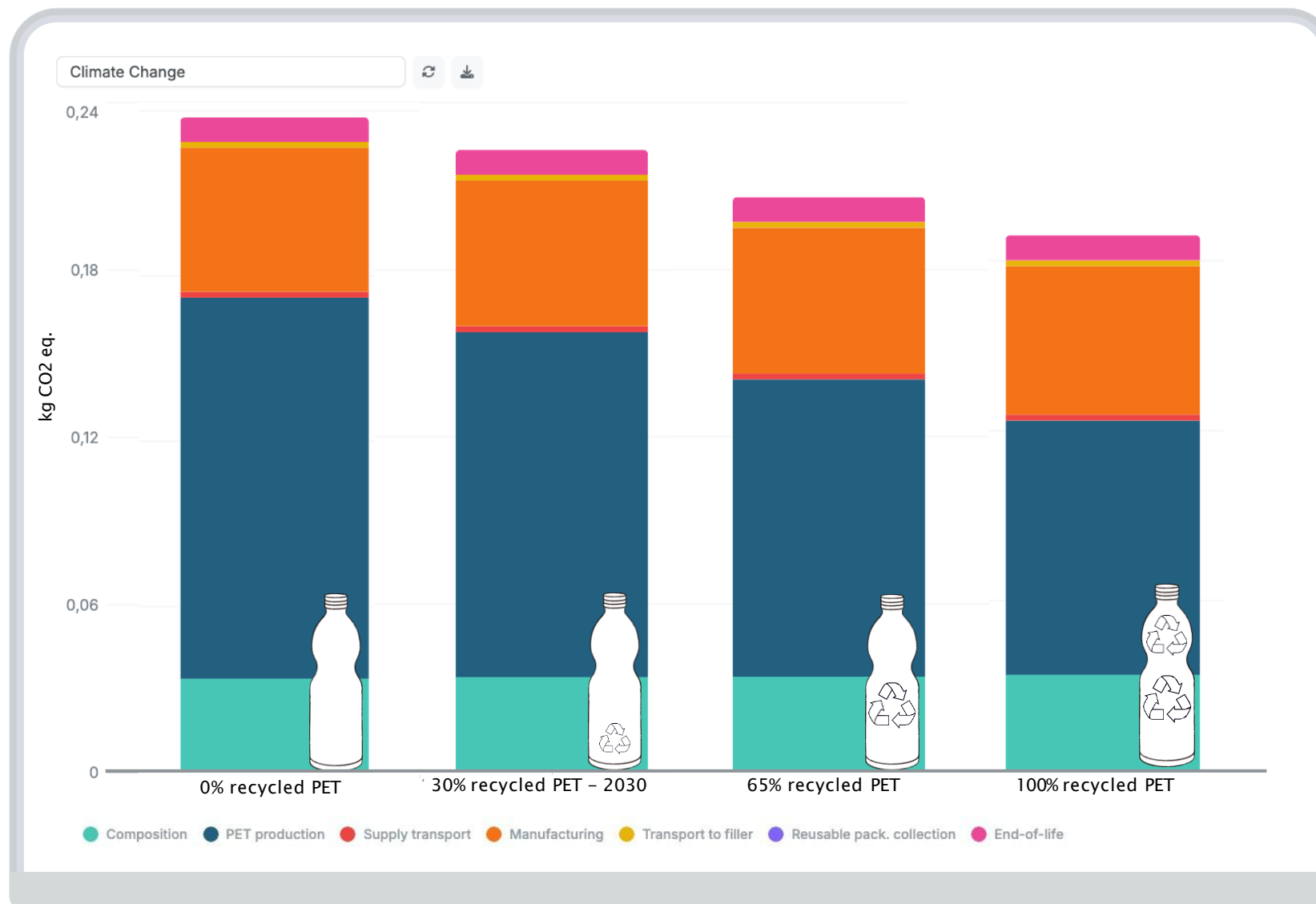
65% recycled content

- 65% recycled PET pellets
- Generic recycling production



100% recycled content

- 100% recycled PET pellets
- Generic recycling production



SCENARIO 2: 2030 30% VS 2040 65% RECYCLED CONTENT



0% recycled content

- 100% virgin PET pellets
- Generic PET production



2030 - 30% recycled content

- 30% recycled PET pellets
- Generic recycling production



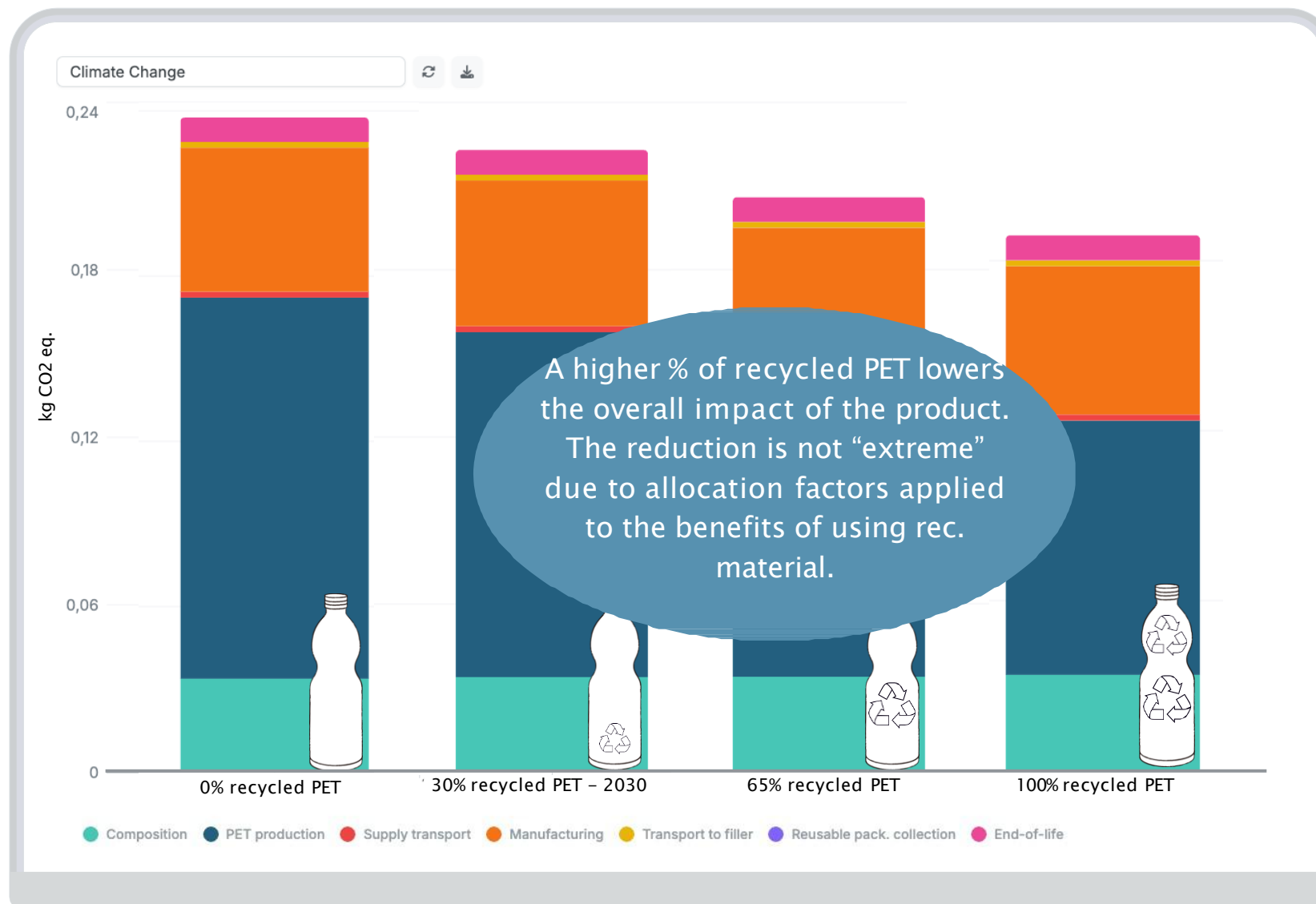
65% recycled content

- 65% recycled PET pellets
- Generic recycling production



100% recycled content

- 100% recycled PET pellets
- Generic recycling production



SCENARIO 2: 2030 30% VS 2040 65% RECYCLED CONTENT

The circular footprint formula (CFF) is automatically applied. Different allocation for recycled content can be selected depending on the intended application of results.

Search...

Description

Composition ^

Bottle body

Bottle cap

Label

Manufacturing ^

Bottle body

preform injection

blow molding

Washing

Bottle cap

PP injection

Label

extrusion

Transport to filler ^

average transport

Total packaging weight 28

Expert parameters - Recycling benefits allocation

Methodological standards for allocation

an PEF allocation x ^

European PEF allocation

Recycled content based

Recycling rate based

50-50 allocation

Aluminium - A factor		Aluminium - Qs/Qp in	100	%	Aluminium - Qs/Qp out
Steel - A factor		Steel - Qs/Qp in	100	%	Steel - Qs/Qp out
PET - A factor		PET - Qs/Qp in	90	%	PET - Qs/Qp out
PP - A factor	50	PP - Qs/Qp in	90	%	PP - Qs/Qp out
HDPE - A factor	50	HDPE - Qs/Qp in	90	%	HDPE - Qs/Qp out
LDPE - A factor	50	LDPE - Qs/Qp in	75	%	LDPE - Qs/Qp out
PS - A factor	50	PS - Qs/Qp in	90	%	PS - Qs/Qp out
Glass - A factor	20	Glass - Qs/Qp in	100	%	Glass - Qs/Qp out
Cardboard - A factor	50	Cardboard - Qs/Qp in	90	%	Cardboard - Qs/Qp out
Paper - A factor	50	Paper - Qs/Qp in	90	%	Paper - Qs/Qp out
Wood - A factor	80	Wood - Qs/Qp in	100	%	Wood - Qs/Qp out

SCENARIO 2: 2030 30% VS 2040 65% RECYCLED CONTENT

The circular footprint formula (CFF) is automatically applied. Different allocation for recycled content can be selected depending on application

The **A factor**: allows for a **split of burdens** (negative impacts) and **credits** (positive impacts) or recycled materials between life cycles. The A factor is determined based on the availability of certain materials. A **high A factor** (0,8) means that there is a **high supply** of recycled material but a **low demand**, so there will be **less impact in the input side** (at the raw material stage) and **less credit from recycling it** (at the end of life stage). A low A factor (0,2) is the opposite, it represents a recycled material which is in high demand but low supply, so it will get more credit at the end of life. **PET has an A factor of 0,5**, this means that there is **balance between supply and demand**. The difference in impact between 100% recycled and 0% recycled content is not “extreme” due to the application of the A factor, quality factors and also due to the fact we are **using generic data**. These factors are determined in Annex C of the PEF document from the European Commission.

The screenshot shows a software interface for calculating the Product Environmental Footprint (PEF). On the left, a sidebar lists components: Bottle body, Bottle cap, and Transport to filler (average transport). The main area is titled 'Expert parameters - Recycling benefits allocation'. It features a search bar, a dropdown menu for 'Methodological standards for allocation' (currently showing 'an PEF allocation'), and a table of material-specific parameters. The table includes columns for material type, A factor, and Qs/Qp in/out percentages. The 'Total packaging weight' is displayed as 28.

Material	A factor	Qs/Qp in (%)	Qs/Qp out (%)
Aluminium	100	100	100
Steel	100	100	100
Cardboard	50	90	90
Paper	50	90	90
Wood	80	100	100

BONUS SCENARIO 2.2: INPUT OF SPECIFIC DATA

Generic

VS

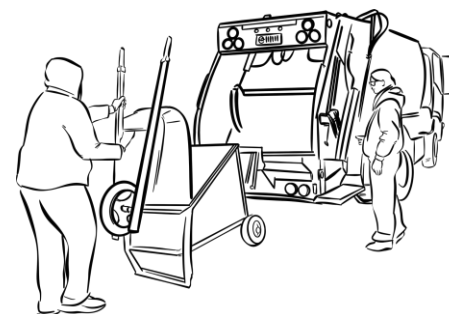
Specific data

e.g. 100% recycled PET

e.g. 100% recycled PET
from DRS or curbside collection

^ Polyethylene teraphthalate description

PET share ⓘ	100	%
Type of PET production ⓘ	PET - Generic production ▼	
Country (or region) of production ⓘ	Europe ▼	
Specific electricity mix ⓘ	False	

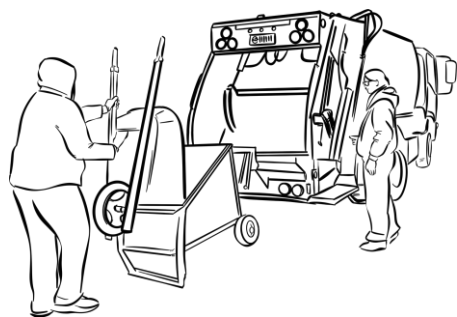


*Curbside
collection
system*



*Deposit-return
system*

BONUS SCENARIO 2.2: INPUT OF SPECIFIC DATA



Curbside collection system

100% recycled PET from curbside ✎

▼ Polyethylene teraphthalate description

▼ Upstream transport

^ Sorting Factory

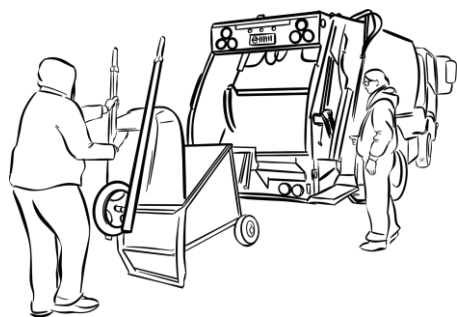
Kerbside collection share	100	%
DRS collection share	0	%
Total input of waste *	1096	ton / year
Total output of sorted waste *	1000	ton / year
Sorting yield	91.24	%
Incineration rate for unsorted waste	19.9104	ton / year
Landfill rate for unsorted waste	76.0896	ton / year
LHV of unsorted waste	11.7	MJ / kg

^ Sorting - Process

Electricity consumption	18.07802	kWh / year
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?

BONUS SCENARIO 2.2: INPUT OF SPECIFIC DATA



Curbside collection system

100% recycled PET from curbside ✎

▼ Polyethylene teraphthalate description

▼ Upstream transport

^ Sorting Factory

Kerbside collection share	100	%
DRS collection share	0	%
Total input of waste *	1096	ton / year
Total output of sorted waste *	1000	ton / year
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Incineration rate for unsorted waste	19.9104	ton / year
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LHV of unsorted waste	11.7	MJ / kg

^ Sorting - Process

Electricity consumption	18.07802	kWh / year
-------------------------	----------	------------

?

BONUS SCENARIO 2.2: INPUT OF SPECIFIC DATA



Deposit- return system

100% recycled PET from DRS

▼ Polyethylene teraphthalate description

▼ Upstream transport

^ Sorting Factory

Kerbside collection share 0 %

DRS collection share 100 %

Total input of waste * 1096 ton / year

Total output of sorted waste * 1000 ton / year

Sorting yield 91.24 %

Incineration rate for unsorted waste 19.9104 ton / year

Landfill rate for unsorted waste 76.0896 ton / year

LHV of unsorted waste 11.7 MJ / kg

^ Sorting - Process

Electricity consumption 18.07802 kWh / year

BONUS SCENARIO 2.2: INPUT OF SPECIFIC DATA



Deposit- return system

100% recycled PET from DRS ✎

▼ Polyethylene teraphthalate description

▼ Upstream transport

^ Sorting Factory

Kerbside collection share	0	%
DRS collection share	100	%
Total input of waste *	1096	ton / year
Total output of sorted waste *	1000	ton / year
Sorting yield	91.24	%
Incineration rate for unsorted waste	19.9104	ton / year
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^ Sorting - Process		
Electricity consumption	18.07802	kWh / year

?

BONUS SCENARIO 2.2: INPUT OF SPECIFIC DATA



Deposit- return system

100% recycled PET from DRS

▼ Polyethylene teraphthalate description

▼ Upstream transport

^ Sorting Factory

Kerbside collection share

0

DRS collection share

100

Total input of waste *

1096

ton / year

Total output of sorted waste *

1000

ton / year

Sorting yield

91.24

%

Incineration rate for unsorted waste

19.9104

ton / year

Landfill rate for unsorted waste

76.0896

ton / year

LHV of unsorted waste

11.7

MJ / kg

^ Sorting - Process

Electricity consumption

18.07802

kWh / year

If you have specific data about your production process, or recycled content input, you can add it into the software and get specific results

BONUS SCENARIO 2.2: INPUT OF SPECIFIC DATA



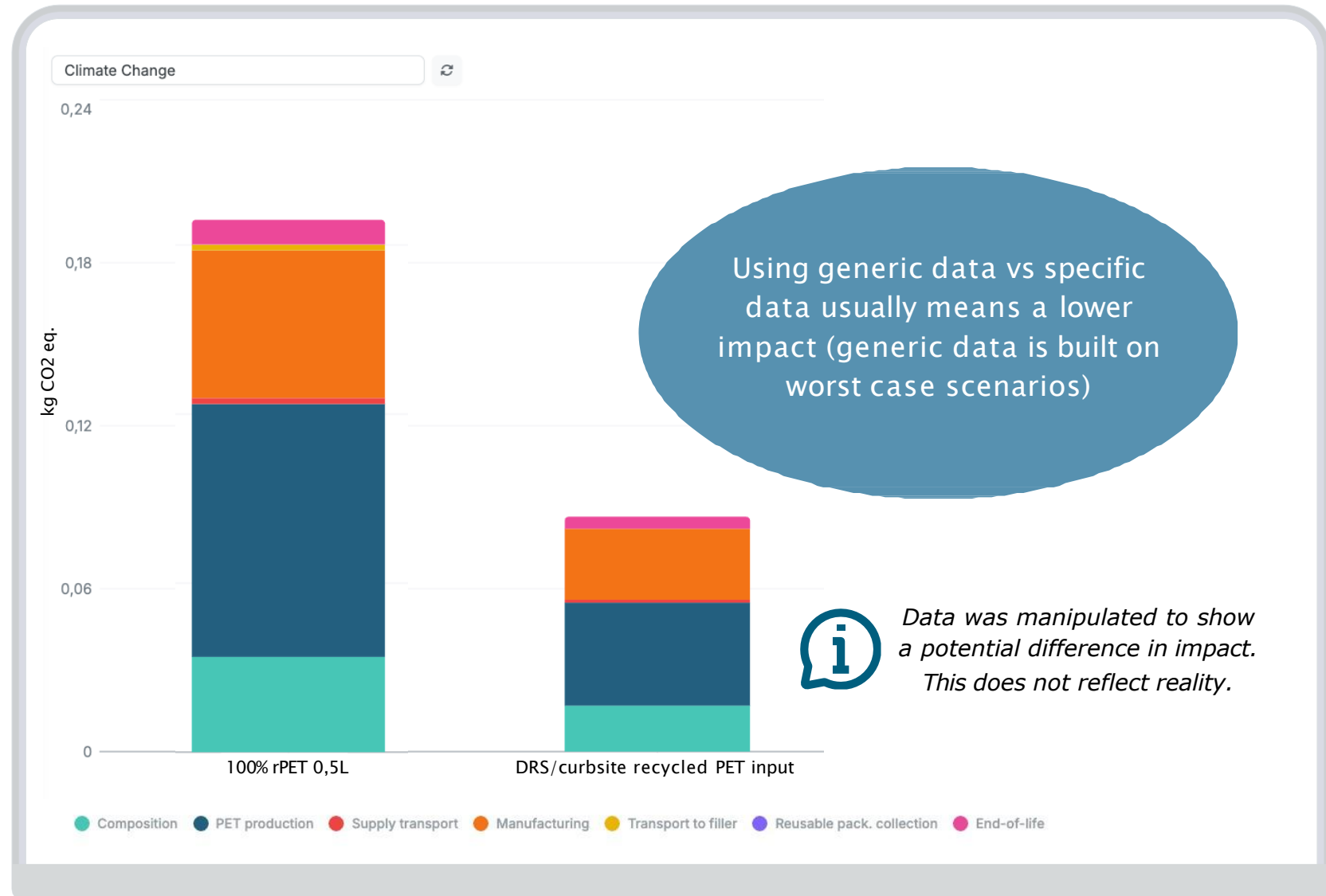
DRS input

- 100% recycled PET pellets from DRS



Curbside collection input

- 100% recycled PET pellets from curbside



WHY USE A SOFTWARE & PETCORE MEMBERS OFFER

Raw Material
Extraction



Processing &
Manufacturing



Transport



Use



Recycling /
Disposal



WHY USE A SOFTWARE?

Easy

- A platform for the whole team - from marketing to R&D

Powerful

- Integrate with our API and move away from spreadsheets

Scalable

- Calculate your entire portfolio without heavy consultancy fees

LCA & ECODESIGN WITH PILARIO



Comply

- Comply with the **Green Claims Directive**
- Use results for **CSRD reporting**



Benchmark

- **Compare** your product's environmental impact against **other products/materials**



Reduce

- **Measure** your impact with LCA
- **Identify** hotspots to reduce your impact across the lifecycle

OFFER SUMMARY

Pilario & PETCORE have partnered to offer an LCA software tailored to the PETCORE members to **measure, reduce** and **report** on their environmental impact.



Reduced license fee (€3500/year) for PETCORE members :

- 1 user
- Up to 20 products/scenarios
- Lifecycle Assessment (LCA) calculation cradle-to-grave
- PETCORE compact LCA report

Additional features available:

- More users, products, access roles
- Product Carbon Footprint, cradle-to-gate scope for Scope 3
- Single Sign On access

Book a call today.



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www.pilario.com



www.linkedin.com/company/pilario

 **Pilario**