

wastein
progress

16·17·18

April

2024

6th Edition

Takeaway Packaging Reuse: Good idea? Bad idea?

Simon Hann

Managing Consultant at Eunomia Research &
Consulting Ltd

Takeaway Packaging Reuse: Good idea? Bad idea?



17 April 2024

Waste in Progress

+34 623 448 579 

Eunomia's Diverse, Global Clients

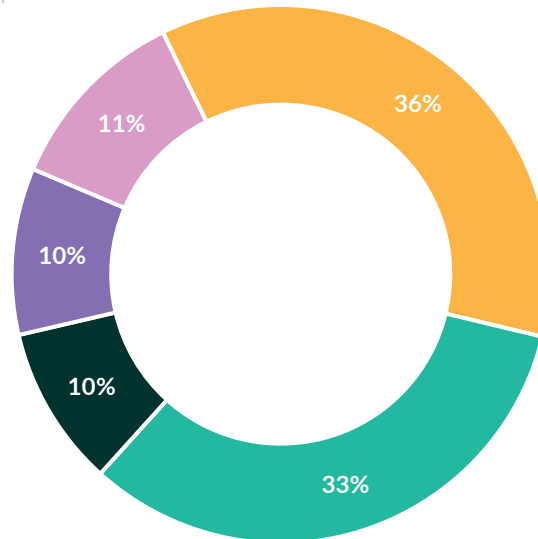
National, Regional Government



Supranational Government



Non-Governmental Organisations



Local Government



Private Sector



+34 623 448 579

Contents

1. Why reuse?

2. So why the controversy?

3. And so what does 'good' look like for reuse?

4. Key Takeaways

1.0

Why reuse?

Is Net Zero Enough?*

(*NO, not on its own)

The Journey is just as
important as the
destination...

<https://www.eunomia.co.uk/reports-tools/is-net-zero-enough-for-the-materials-production-sector/>

+34 623 448 579 

Is Net Zero Enough for the Material Production Sector?

Analysing the decarbonisation pathways for
key material sectors and their ability to
meet global carbon budgets

November 2022



 eunomia

 ZERO
WASTE
EUROPE

“ There is a **67%** chance of global warming staying within 1.5°C of pre-industrial levels if cumulative global CO₂ emissions stay below

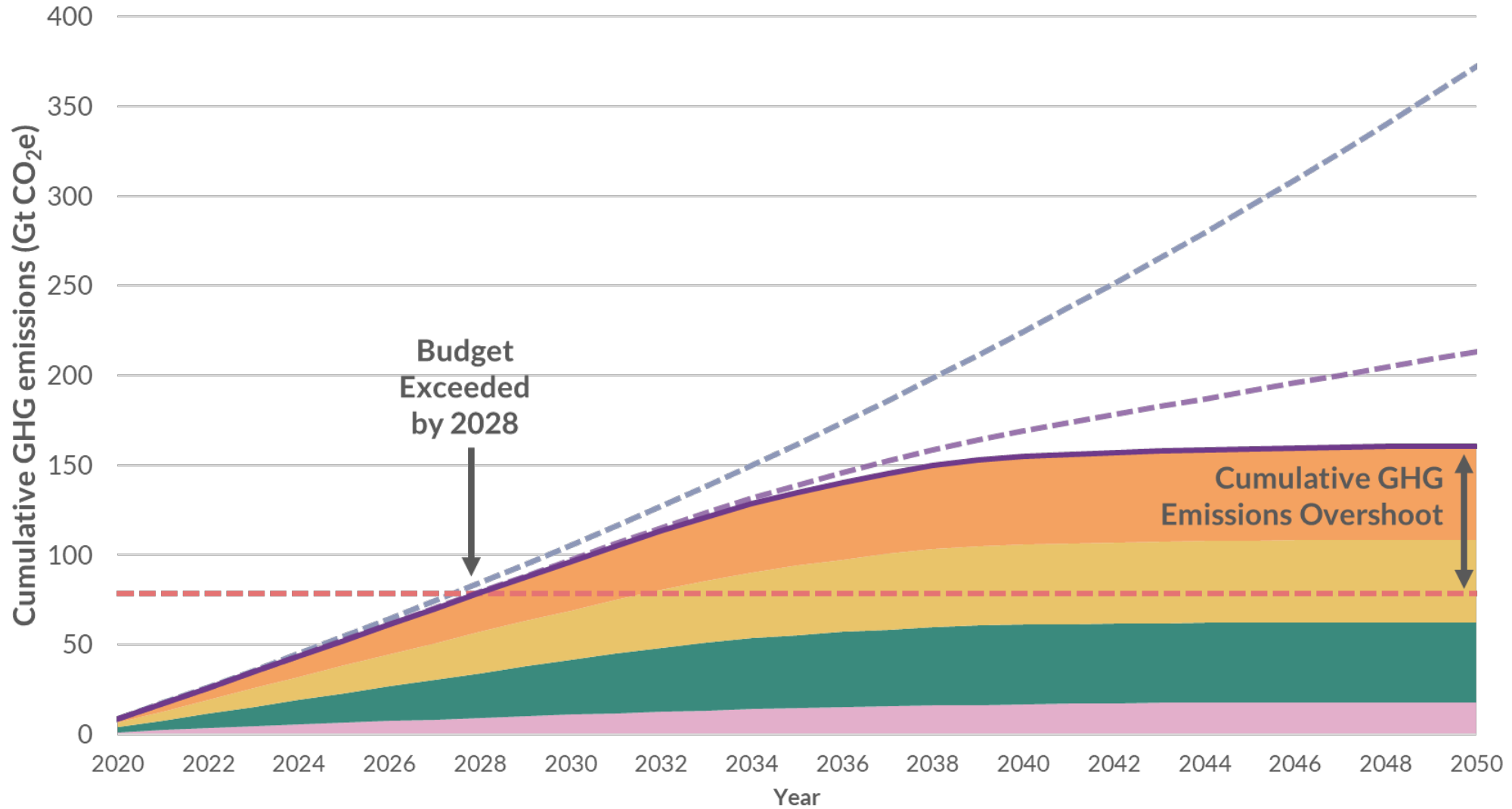
400 GtCO₂ ”

““

Current trajectories suggest that this budget will be depleted **within the next 10 years** if growth rates are maintained

””

Cumulative Material CO₂ Emissions - Expected Deployment Scenario



Aluminium

Plastics

Cumulative GHG emissions

Concrete & cement

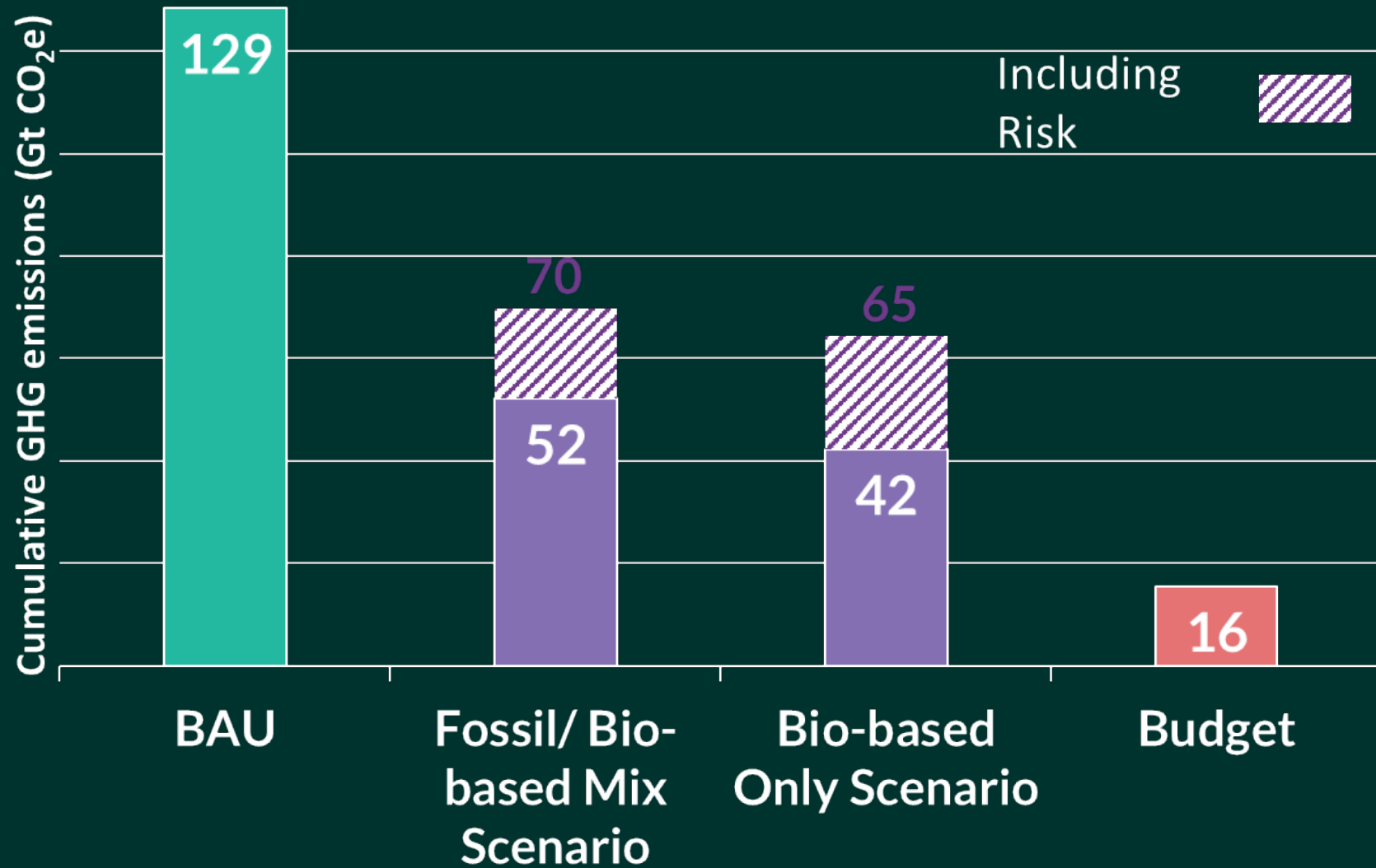
BAU

Cumulative GHG emissions with risk

Iron & steel

<1.5°C Budget (67% probability)

Plastics Decarbonisation Scenarios



“

The plastics industry has no net zero strategy and is on a trajectory of 3.5°C

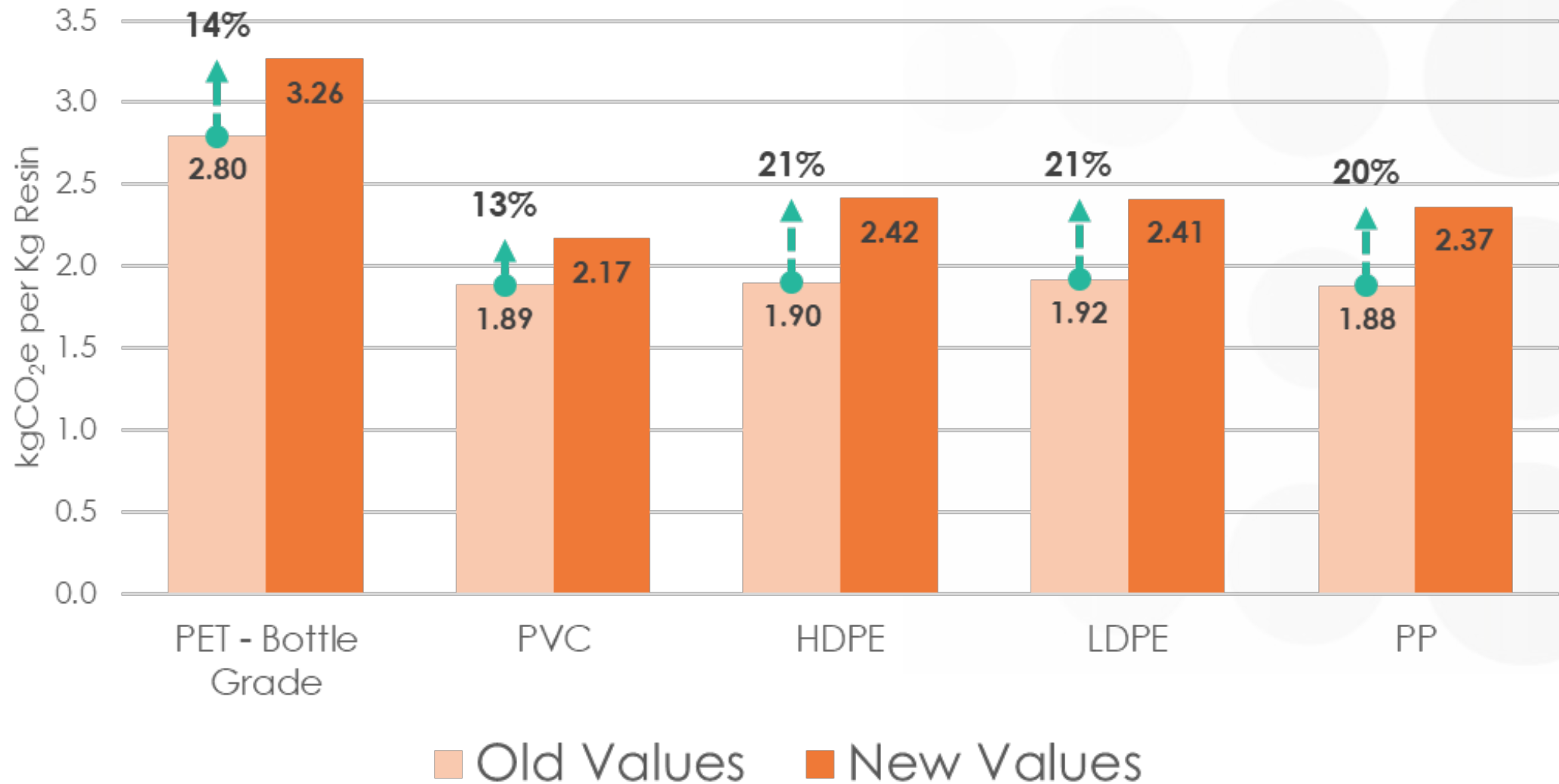
”

“

Even if this concerted action takes place...
rather than growing by 4%, demand for plastics
would need to reduce by 3% each year... with
annual consumption halved by 2050, and **per
capita consumption reduced by 75%**

”

Changes to GHG Values for Common Polymers - European Average



2.0

So why the controversy for
reusable packaging?

Unveiling the Complexities: Exploring LCAs of Reusable Packaging in the Take-Away Sector

Why do they disagree and how can we determine their credibility?

July 2023

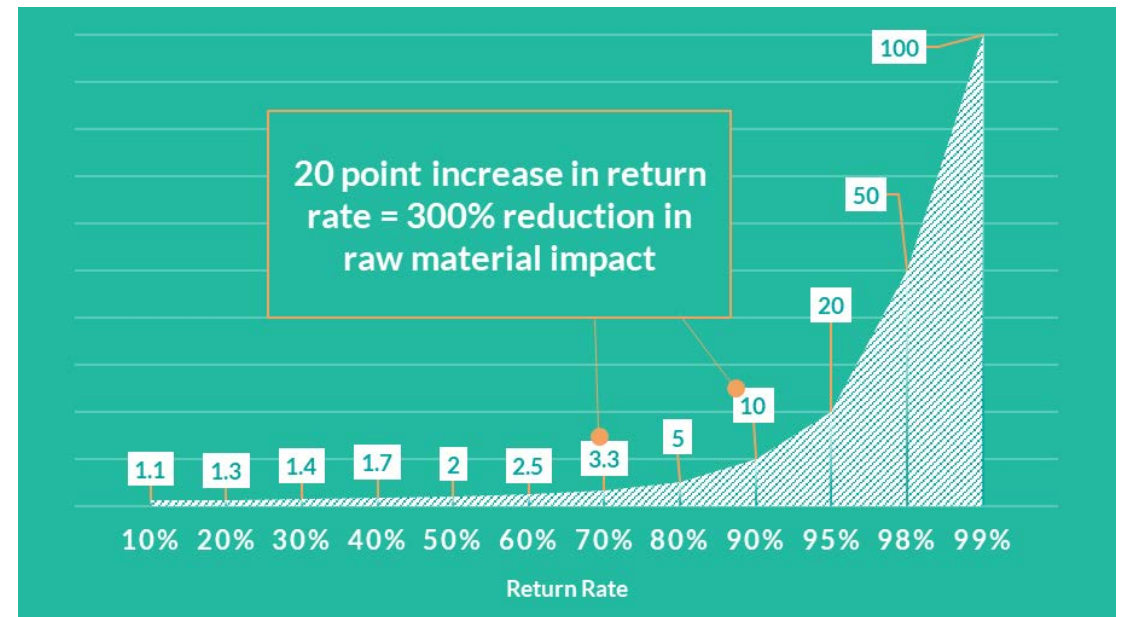
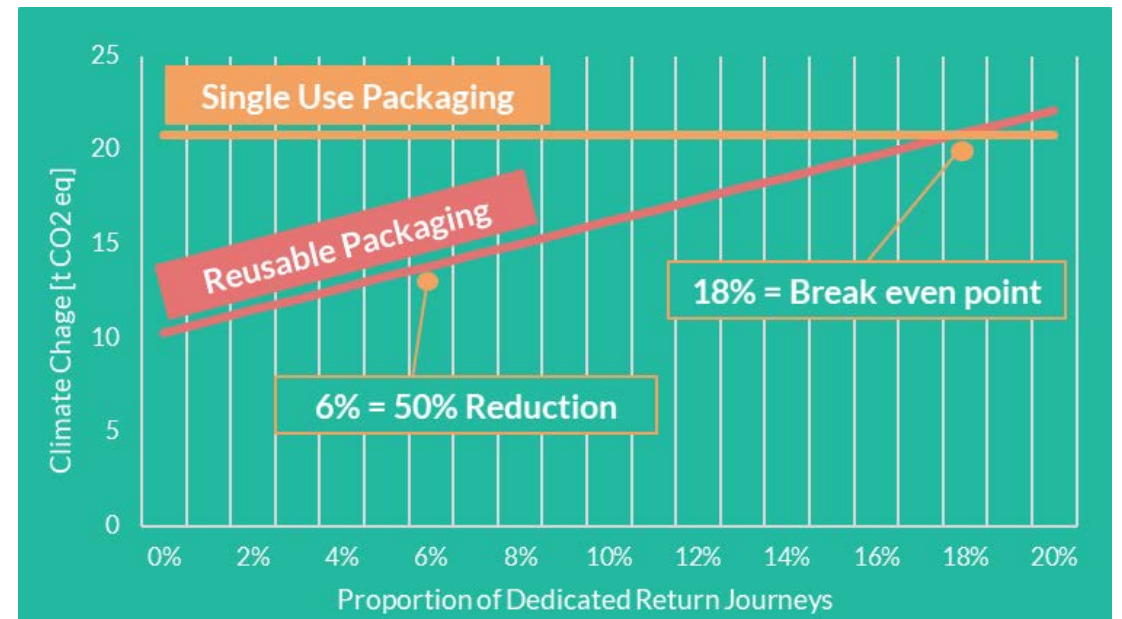














































<https://zerowasteurope.eu/library/unveiling-the-complexities-exploring-lcas-of-reusable-packaging-in-the-take-away-sector/>

“

A poorly designed and implemented reuse system will not outperform single-use alternatives.

”



Name of the study	<i>McDonald's study (Kearney, 2022)</i>	<i>EPPA's study (Ramboll, 2020)</i>	<i>EPPA's study (Ramboll, 2022)</i>	<i>Tomra's study (Eunomia, 2023)</i>
Proposed LCA criteria				
1.a. Peer-review (i.e., reviewed by third parties)				
1.b. Independent (i.e., without conflicts of interest)				
2.a. ISO LCA frameworks compliant				
2.b. Clear goal and scope definition				
2.c. Transparency of inventory data				
3.a. Assessment of the highest possible number of relevant environmental indicators				
3.b. Evaluation of full life-cycle				
4.a. Clear assumptions for reusable packaging (e.g., on breakage rate, return rate, weight and end-of-life)				
4.b. Sensitivity analysis on key parameters and assumptions				
4.c. Scenario analysis on business model configurations for use & end-of-life				
5. Environmental break-even points analysis				

Legend  Criteria not fulfilled  Criteria partially fulfilled  Criteria fulfilled

3.0

So what does good look like for reuse?

Assessing Climate Impact: Reusable Systems vs. Single-use Takeaway Packaging

September 2023



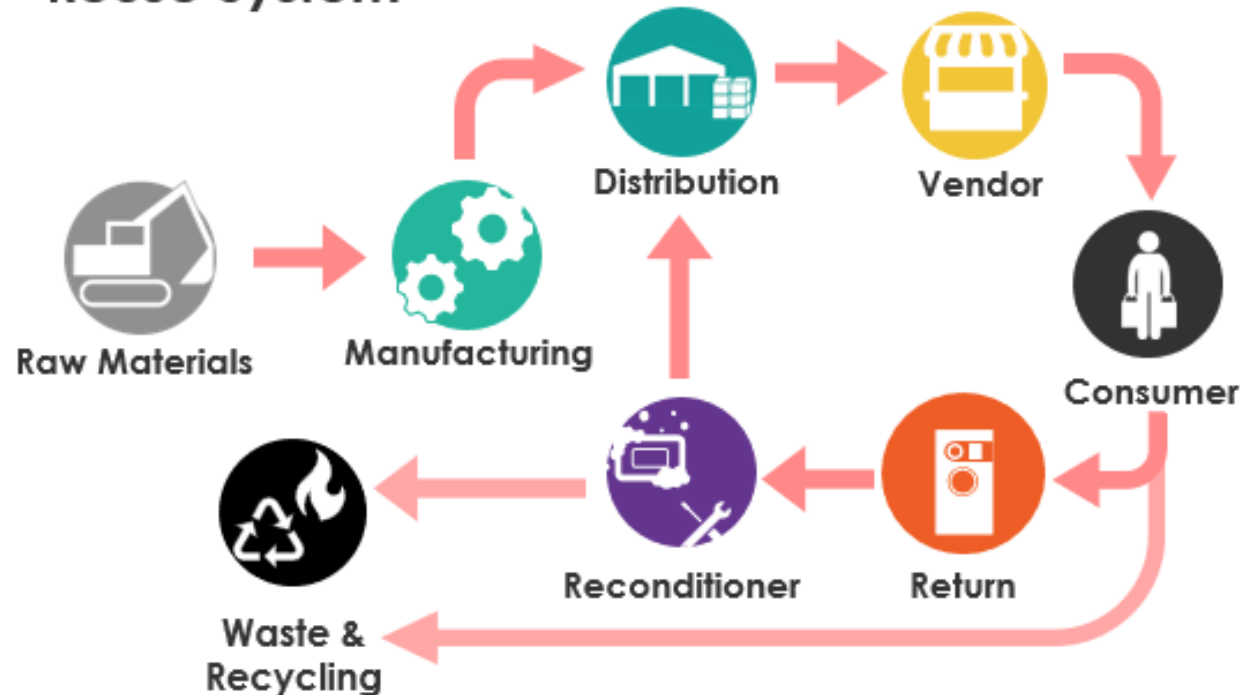
<https://eunomia.eco/reports/assessing-climate-impact-reusable-systems-vs-single-use-takeaway-packaging/>

The Systems Compared

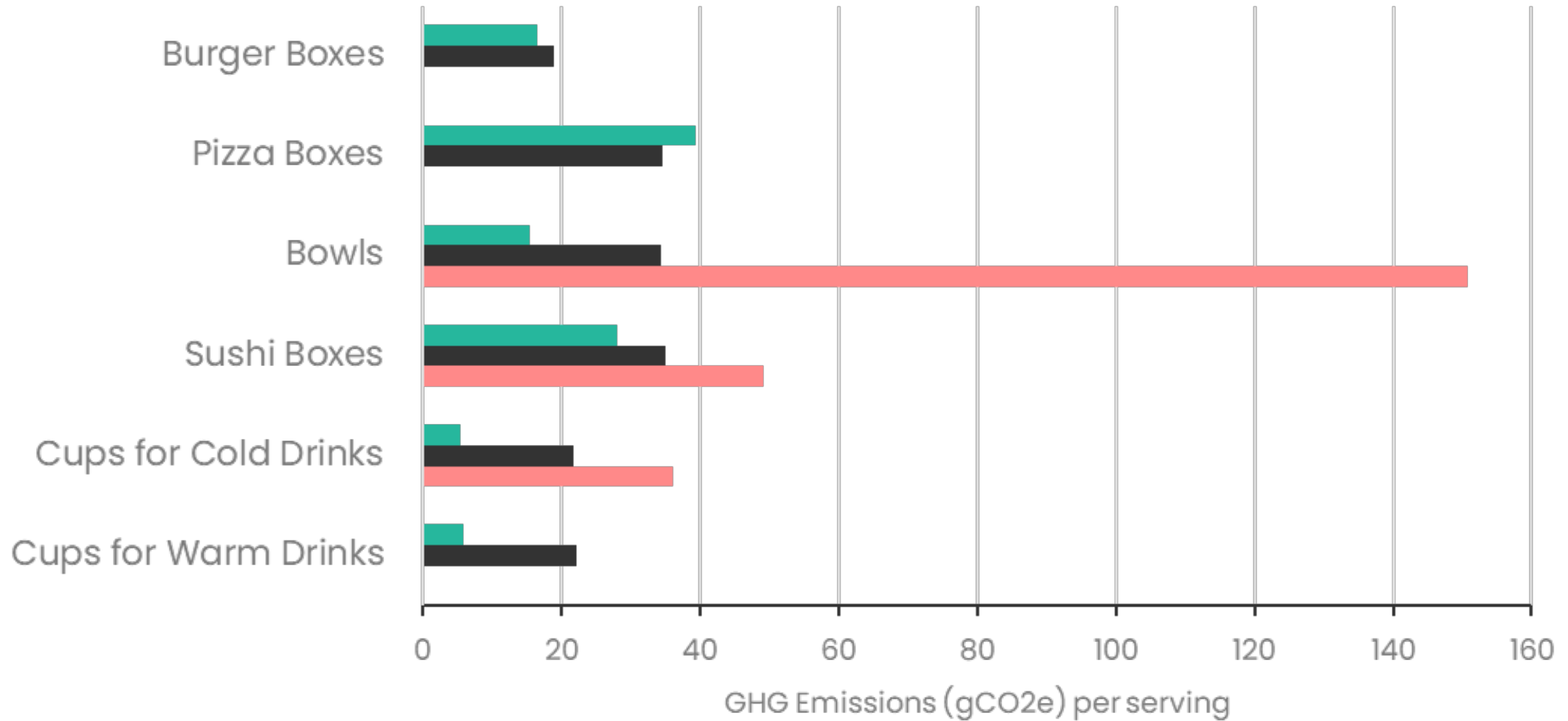
Single-Use System



Reuse System



Comparative Carbon Footprint



Breakeven Point Analysis

Product	Breakeven # Rotations	Breakeven Return Rate	
Cups for Cold Drinks	6	83%	Implementation easy, with immediate benefits
Cups for Warm Drinks	6	83%	
Bowls	13	92%	
Burger Boxes	30	97%	
Sushi Boxes	35	97%	More design and system optimisation needed
Pizza Boxes	63	98%	

4.0

Key Takeaways

Key Conclusions

- 1. Transitions to reuse are unavoidable to keep us within planetary boundaries**
 - The EU is innovation and capital rich but resource poor: reuse transitions should be at the heart of our industrial strategy
- 2. Techniques like LCA can be easily manipulated to give false solutions**
 - But policymakers can guard against this by asking the right questions
- 3. For takeaway packaging, solutions are likely to emerge that beat single use against multiple environmental and economic metrics**
 - Some design and system optimisation is still required for many applications



Simon Hann

simon.nann@eunomia.co.uk

Download our reports from
www.eunomia.eco

Thank You

+34 623 448 579 