Assessing the impact of PPWR’s reuse targets

Overview

As the EU looks to adopt the Packaging and Packaging Waste Regulation (PPWR), one of the most ambitious and far-reaching proposals of the EU Green Deal, a new report finds that imposing strict reusable packaging targets by 2030 will severely impact the EU’s environmental footprint and the competitiveness and resilience of the European economy.

Reviewing several existing studies on packaging and drawing on two separate case studies analysing the impact of switching to reuse in the takeaway foodservice sector in Belgium and for non-food e-commerce sector in Germany, the report analyses the impact of the 2030 reuse targets versus alternatives across three dimensions:

THE ECONOMIC IMPACT
of reuse solutions

THE ENVIRONMENTAL IMPACT
of reuse materials and systems

THE SOCIETAL IMPLICATIONS
for stakeholders resulting from the introduction of reuse systems

THE CONCLUSIONS OF THE REPORT ARE CLEAR:

Reusable solutions would yield higher CO₂ emissions

Reusable solutions imply higher cost

Transport is the main driver for both CO₂ emissions and cost

Reusable options are fossil-based
Considerable additional costs and CO₂ emissions: the reality of switching to reuse packaging for takeaway foodservice in Belgium

PPWR targets:

Final distributors of cold or hot beverages for takeaway shall ensure:

- From 1 January 2030: 20% of those beverages are made available in reusable packaging
- From 1 January 2040: 80% of those beverages are made available in reusable packaging

Final distributors of takeaway ready-prepared food will also need to ensure that:

- From 1 January 2030: 20% of those products are made available in reusable packaging
- From 1 January 2040: 40% of those products are made available in reusable packaging

**Assuming:**
- 20 rotations per reuse item
- 30% recycling rate for both items

**CO₂ EMISSIONS**

- Increase of 5 to 5.5kt of CO₂ emissions on account of the higher share of fossil components in materials, transport and energy use
- The environmental impact is largely driven by transport and cleaning. Cleaning also leads to additional water consumption, energy usage and contamination by detergents

+140-160% ADDITIONAL CO₂ EMISSIONS

- Reuse alternatives will be more expensive compared to single-use alternatives due to increased transportation and cleaning costs
- The increased cost of packaging will be ultimately passed on to consumers

**COST INCREASES OF 80% TO 130%**

**CONSIDERABLE SOCIETAL IMPLICATIONS**

- Shifting to reuse will raise the issue of maintaining a high level of food safety
- Consumers will need to learn new behaviours
- The implied reuse model will require customers to store, potentially rinse and return the items to a collection point or reserve vending machine

**FOODSERVICE COST, eurocent per item per cycle**

- **Containers**:
  - Single-use, 30% recycling rate: 15-25
  - Reuse 20 rotations: 20-30

- **Cups**:
  - Single-use, 30% recycling rate: 40-50
  - Reuse 20 rotations: 5-15

**FOODSERVICE EMISSIONS, g CO₂ per item per cycle**

- **Containers**:
  - Single-use, 30% recycling rate: 110-120
  - Reuse 20 rotations: 65-75

- **Cups**:
  - Single-use, 30% recycling rate: 40-50
  - Reuse 20 rotations: 25-35

**INCREASE WATER CONSUMPTION BY AT LEAST 20 MILLION LITRES BY 2030**

There are additional costs associated with implementing reusables, such as:

- + EUR 20 MILLION ONE TIME COST
  - Main challenge will be to integrate the reusables into daily operations of employees and integrate the system into each merchant’s IT, while educating both consumers and merchants on the use of reusables

+150-160% ADDITIONAL WATER CONSUMPTION

Source: The potential impact of reusable packaging. McKinsey, April 4, 2023
Soaring CO₂ emissions and costs: the case of e-commerce packaging in Germany

**PPWR targets:**

E-commerce operators delivering non-food items shall ensure that:

<table>
<thead>
<tr>
<th>From 1 January 2030</th>
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<tbody>
<tr>
<td>10% of such packaging used is reusable packaging</td>
<td>50% of such packaging used is reusable packaging</td>
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**Packing 10% of e-commerce deliveries of non-food items in reuse boxes and bags by 2030 instead of single use alternatives will lead to:**

- **CO₂ EMISSIONS**
  - Switching to reuse will lead to 2.5 to 3 kt of additional CO₂ emissions
  - Packaging, transport and storage facilities contribute to the CO₂ footprint

- **E-COMMERCE COSTS**
  - First-time investment into reusable items as well as to source additional boxes to cover stagnant returns

- **E-COMMERCE EMISSIONS**
  - Switching to reusable packaging will cost €60 to €70 million more
  - Transport and logistics are the biggest drivers for the cost increase

- **+ €90 MILLION ONE-TIME COST**
  - For e-commerce merchants, key challenge of implementing reusables will be additional need for infrastructure, space and logistic/transport capacity

**E-COMMERCE COSTS, eurocent per item per cycle**

<table>
<thead>
<tr>
<th>Mailer bags</th>
<th>Boxes</th>
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<td>Single-use, 90% recycling rate</td>
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<tr>
<td>+50-60%</td>
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<td>Transport and logistic handling</td>
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There are additional costs associated with implementing reusables which have not been quantified in the report, such as:

- IT, infrastructure and educational costs
- Cleaning cost
- Additional costs associated with implementing reusables which have not been quantified in the report, such as: IT, infrastructure and educational costs, cleaning cost.

Source: The potential impact of reusable packaging, McKinsey, April 4, 2023