



# Disruptive sustainability

Implications of the  
2022 Plastic Packaging Tax

June 2020

Simon Ede, Yassir Ahmed, E Wah Wan,  
Kitty Stacpoole

**CRA** Charles River  
Associates

# The new tax on plastic packaging is an example of policy intervention which companies will have to manage on an increasing scale and frequency. Strategic challenges for executive teams:



How do you assess and manage the impact of step changes in international sustainability policy on globalised supply chains?



How do you embed optionality and flexibility in strategic plans to respond to an increasingly disruptive operating landscape?



How do you monitor and quickly recognise, tipping points in industry structure and competitive dynamics?

## Case study: UK Plastic Packaging Tax

### Context

- The UK government has announced a tax of £200/t on plastic packaging with <30% recycled content to disincentivise the use of virgin plastic.
- The tax is aimed at large consumers of plastic packaging. Large businesses in the trade of consumer goods are likely to bear the largest burden arising from the tax.

### Challenges from home and abroad

Extensive consultation was undertaken prior to the implementation but challenges remain:

- Recycling capacity and capabilities are limited domestically. The capacity shortfall was approximately 60% in 2018.
- The UK has always been a net exporter of plastic waste, mainly to China and other developing nations.
- China announced a ban on imported plastic waste due to its poor quality which lowers recovery and recycling rates.
- The UK's plastic waste has been diverted to other developing nations. This is not a long-term solution as developing nations' waste generation increases with income, rapidly depleting landfill capacity.
- All else equal, other bans on imported waste akin to China's 2018 policy are likely to follow suit.

### Risks and opportunities

- **Risks:** Large consumers of plastic packaging at risk due to increasing global demand for recycled packaging and plastic waste import bans. The policy's interaction with 'black swan' events e.g. COVID-19 leads to highly unpredictable outcomes.
- **Opportunities:** A market could be created for services related to improving waste quality and recovery rates, including waste management solutions and energy from waste. Export opportunities for waste with low levels of contamination.

# The UK government announced a tax of £200 per tonne on plastic packaging with a recycled content of less than 30% to curb use of virgin plastic

**£200**

per tonne of plastic packaging containing...

**<30%**

recycled content taking effect from...

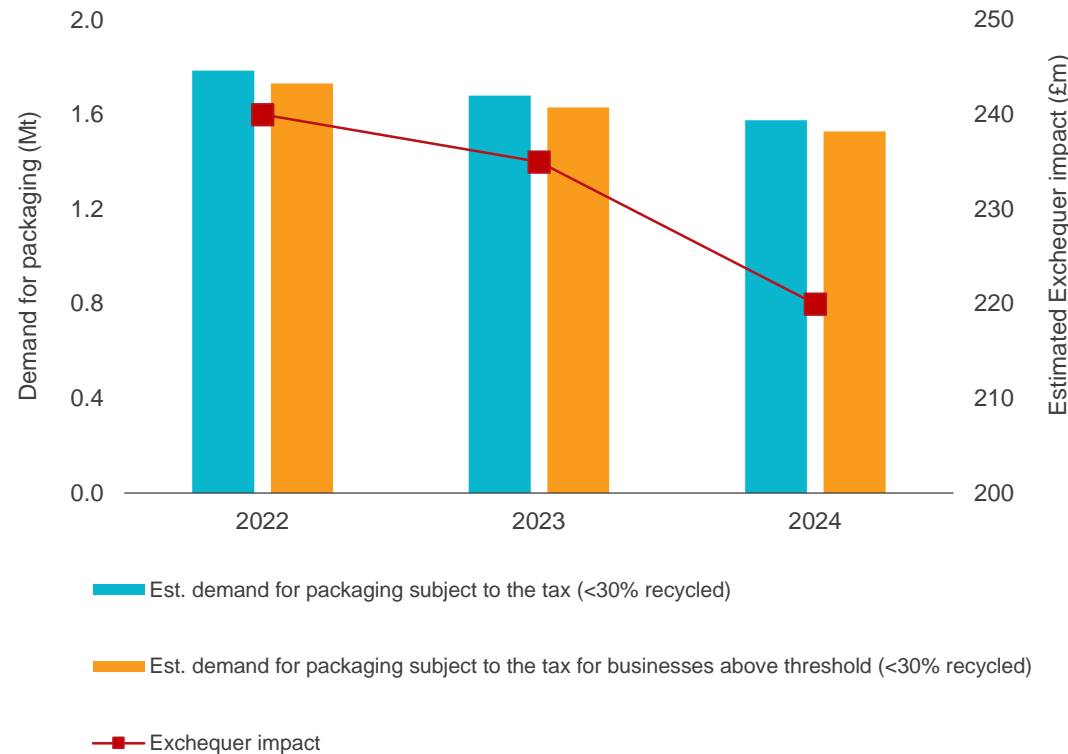
**2022**

aimed at incentivising

**60%**

of recycled content used in plastic packaging

**Figure 1: Demand assumptions and projected Exchequer impact of the proposed tax on virgin plastic packaging**



*Note: OBR has assigned a high level of uncertainty associated with projected tax revenues.  
Source: WRAP, Office for Budget Responsibility, HMRC*

- In the March 2020 budget, the Government announced a tax on plastic packaging which will take effect in 2022.
- A £200/t tax will be levied on plastic packaging with less than 30% recycled plastic content.
- The tax will be levied on UK users of plastic packaging, with an exemption for producers and imports of small quantities (less than 10 kt of plastic p.a.).
- While the tax represents additional tax-revenue in the short to medium term, the goal is to encourage the use of recycled plastic packaging and other sustainable options.
- Tax revenues are expected to fall as switching from virgin plastic packaging increases.
- In recent years, overall plastic packaging use has declined faster than consumer spending. The plastic tax is expected to accelerate this trend, in particular for virgin plastic packaging.

# The consumer sector generates the greatest demand for packaging

## A large proportion of this consists of plastic bottles



**2.3m**

tonnes of plastic packaging placed on UK market



**44%**

of UK plastic consumption is for packaging



**64%**

of plastic packaging is within the consumer sector



**40%**

of all plastic packaging is plastic bottles, about 800 kt in 2019-20

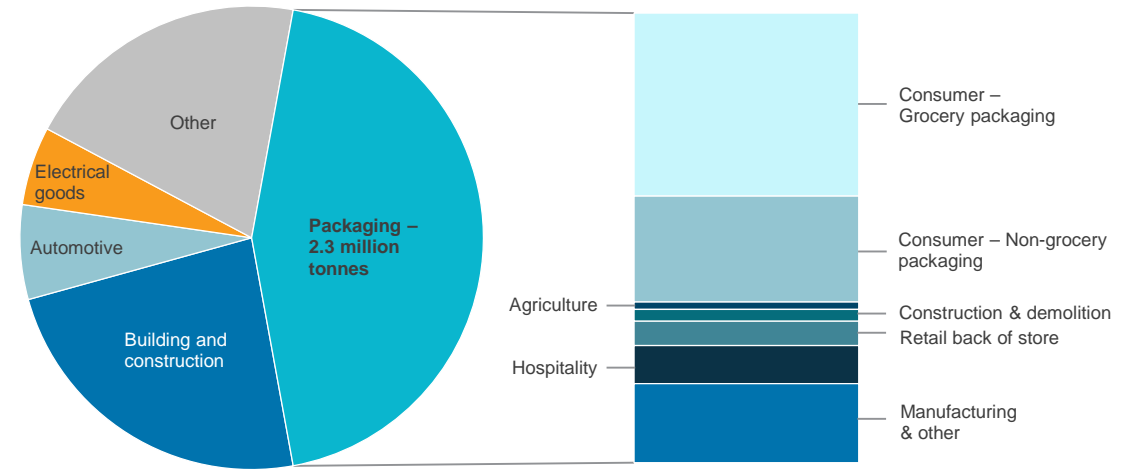
### Who uses plastic packaging?

- Latest estimates indicate that around 2.3 million tonnes (Mt) of plastic packaging was placed on the UK market in 2019-20.
- The consumer sector makes up for 64% of this packaging but other sectors include manufacturing, hospitality, retail back of store, construction and agriculture.

### What kind of plastic packaging are we using?

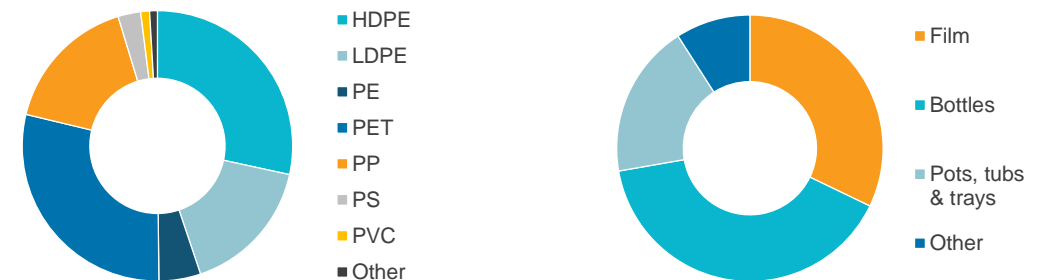
- The majority of our plastic packaging consumption is HDPE (28%) and PET (29%).
- HDPE and PET are predominantly used for bottles.
- Pots, tubs and trays are mostly made from PET and PP.
- It is estimated that bottles make up 40% of all UK plastic packaging.

Figure 2: UK end-use of plastic and plastic packaging



Source: WRAP

Figure 3: UK plastic packaging placed on market composition (%)

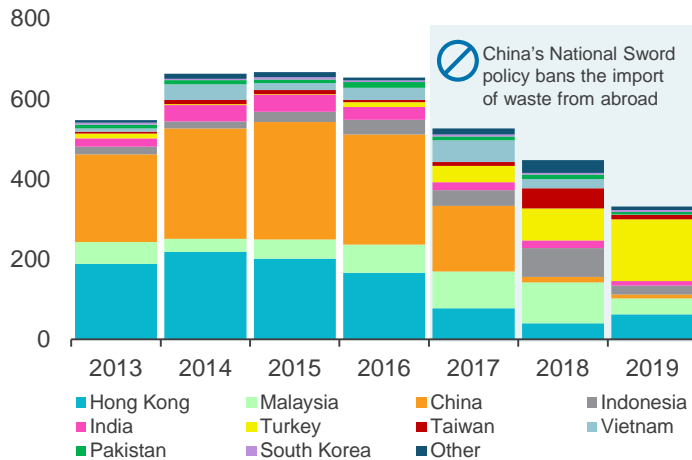


Source: WRAP

# Historically the UK is a net exporter of plastic waste but avenues for exports have decreased due to higher required standards on plastic waste globally

## Where is our plastic waste going?

Figure 4: UK plastic waste\* export destinations outside Europe (thousand tonnes)



Source: Eurostat

- Before 2017, China imported ~50% of global plastic recyclables and was a key destination for UK waste.
- In December 2017, China implemented the “National Sword” policy, banning imports of most plastics due to poor quality and recovery potential, representing a significant contraction in global plastic recovery capacity. In 2018, India followed suit with its own plastic waste ban.
- There is an observable trend of net waste importers closing their doors on poor quality waste with low recovery and recycling potential, eliminating international waste management options.

## Does the UK have sufficient domestic recycling capacity?

Figure 5: Plastic packaging reprocessing\* (thousand tonnes)

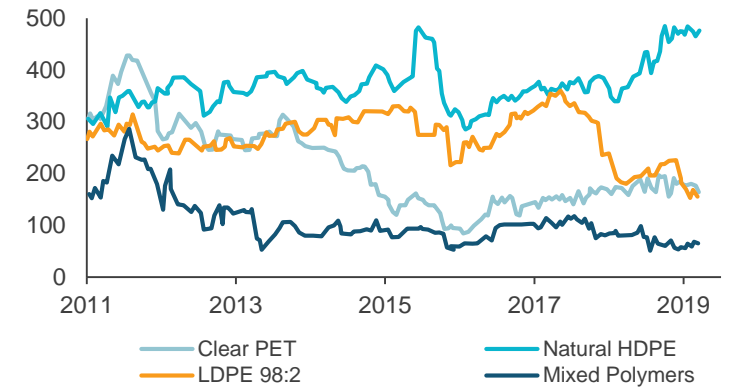


Source: WRAP

- From 2011 to 2018 UK plastic packaging recycling has more than doubled to 384kt.
- Despite the increase in domestic recycling, the UK remains dependent on export markets for recycling and management of plastic waste.
- Only 37% of recovered plastic is recycled domestically.
- UK plastic recyclers have announced plans for additional plastic packaging recycling capacity totalling over 250kt between late 2019 and 2021.

## How do recovered plastic prices compare?

Figure 6: Recovered plastic prices in 2019 (£ per tonne)



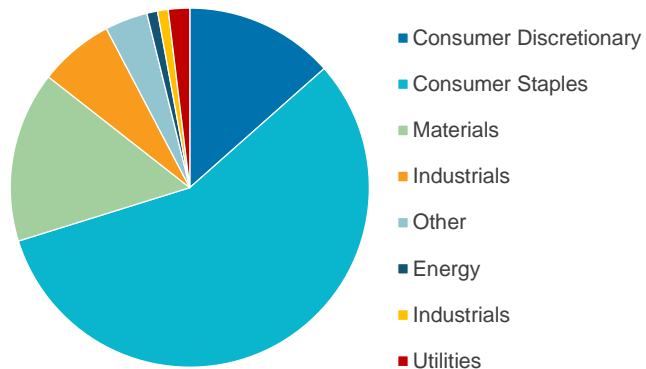
Source: WRAP

- China's ban on the plastic waste imports has had a significant effect on global prices.
- LDPE, which has low recovery rates, has seen a sustained collapse in prices since China's ban.
- This implies the international alternatives for managing UK plastic waste are shrinking, and will depend on the UK being able to meet global waste standards.
- Waste management firms have the opportunity to offer services which improve the quality of plastic waste.
- Higher quality waste has broader international markets and applications, e.g. in refuse-derived fuel.

# The plastic recovery supply chain is global and complex. Large users have taken action but high levels of global interdependencies mean that risks remain.

## Who has taken action?

Figure 7: UK Plastics Pact companies by sector (%)



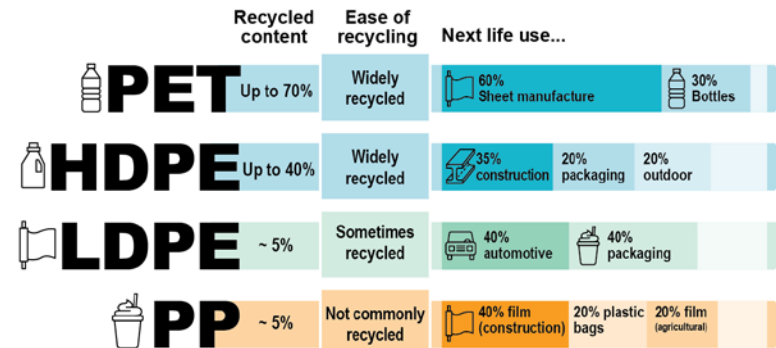
Source: UK Plastics Pact

- The UK Plastics Pact is comprised of over 100 firms mostly focused on producing consumer goods.
- They represent approximately 50% of the total plastic packaging placed on the UK market.
- The current average recycled content across Plastic Pact members is 10%, and they have set out a target of 30% by 2025.

Non-Pact members with packaging consumption >10kt p.a. and limited switching options, face the largest potential disruption to their supply chains.

## “Recyclability” of different plastic types

Figure 8: Ease of recycling and next life use by plastic type



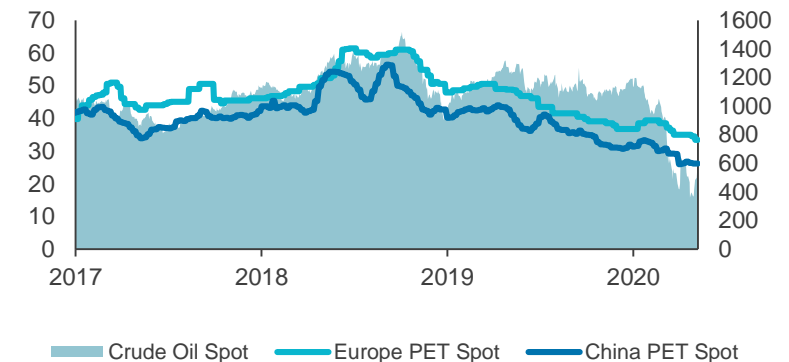
Source: WRAP

- PET producers and HDPE currently have a higher recycled content; the tax is unlikely to affect PET consumers which are mainly in the beverage industry.
- Different plastics vary in the extent to which recycled materials can be used in the end-use materials.
- Packaging films (LDPE) represent the largest recycling challenge. These films are generally found in food packaging and plastic bags.

Companies with significant consumption of PP and LDPE plastic need to respond to the tax. The challenge is considerable for PP packaging as recovery rates and availability of recycled content is currently low.

## The globalised virgin plastics market is likely to remain volatile

Figure 9: Spot prices for Brent Crude Oil and virgin PET plastic (£)



Source: Bloomberg

- PET prices and crude oil prices are closely linked, with Europe PET correlation coefficients above 0.6.
- Since the beginning of 2020, oil prices have fallen by 53% due to the COVID-19 pandemic. PET spot prices have followed suit.
- The dramatic fall in oil prices, and thus virgin plastic prices, was not predicted by policy makers nor plastic packaging users, and may hinder the tax from functioning as intended.

Sustainability policies will ramp up in scope, scale and frequency as the agenda becomes more urgent. Supply chain optionality is needed to prepare for radical policy change coinciding with ‘black swan’ events.

## For further information:



Simon Ede  
Vice President  
[sede@crai.com](mailto:sede@crai.com)  
+44-20-7959-1550



Yassir Ahmed  
Principal  
[yahmed@marakon.com](mailto:yahmed@marakon.com)  
+44-20-7664-3680



E Wah Wan  
Senior Associate  
[ewan@crai.com](mailto:ewan@crai.com)  
+44-20-7959-1522



Kitty Stacpoole  
Analyst  
[kstacpoole@crai.com](mailto:kstacpoole@crai.com)  
+44-20-7959-1422

### Sources:

Economic and fiscal outlook – March 2020, Office for Budget Responsibility, 11 March 2020

PlasticFlow 2025 Plastic Packaging Flow Data Report, WRAP (The Waste and Resources Action Programme), August 2018

Plastics consumption by application markets (%) in the UK, The British Plastics Federation

Plastics Market Situation Report 2019, WRAP, 15 October 2019

Eurostat data, SITC code (579)

A Roadmap to 2025 – The UK Plastics Pact, WRAP, 15 November 2018

Market Snapshot, WRAP, April 2019

The conclusions set forth herein are based on independent research and publicly available material. The views expressed herein are the views and opinions of the authors and do not reflect or represent the views of Charles River Associates or any of the organizations with which the authors are affiliated. If you have questions or require further information, please contact the contributor or editor at Charles River Associates. Detailed information about Charles River Associates, a trademark of CRA International, Inc., is available at [www.crai.com](http://www.crai.com).