Independent Commodity Intelligence Services

Recycled Plastics: The State of the Union

Mark Victory & Matt Tudball, Senior Editors, Recycling

Helen McGeough, Senior Analyst & Global Team lead, Plastics Recycling

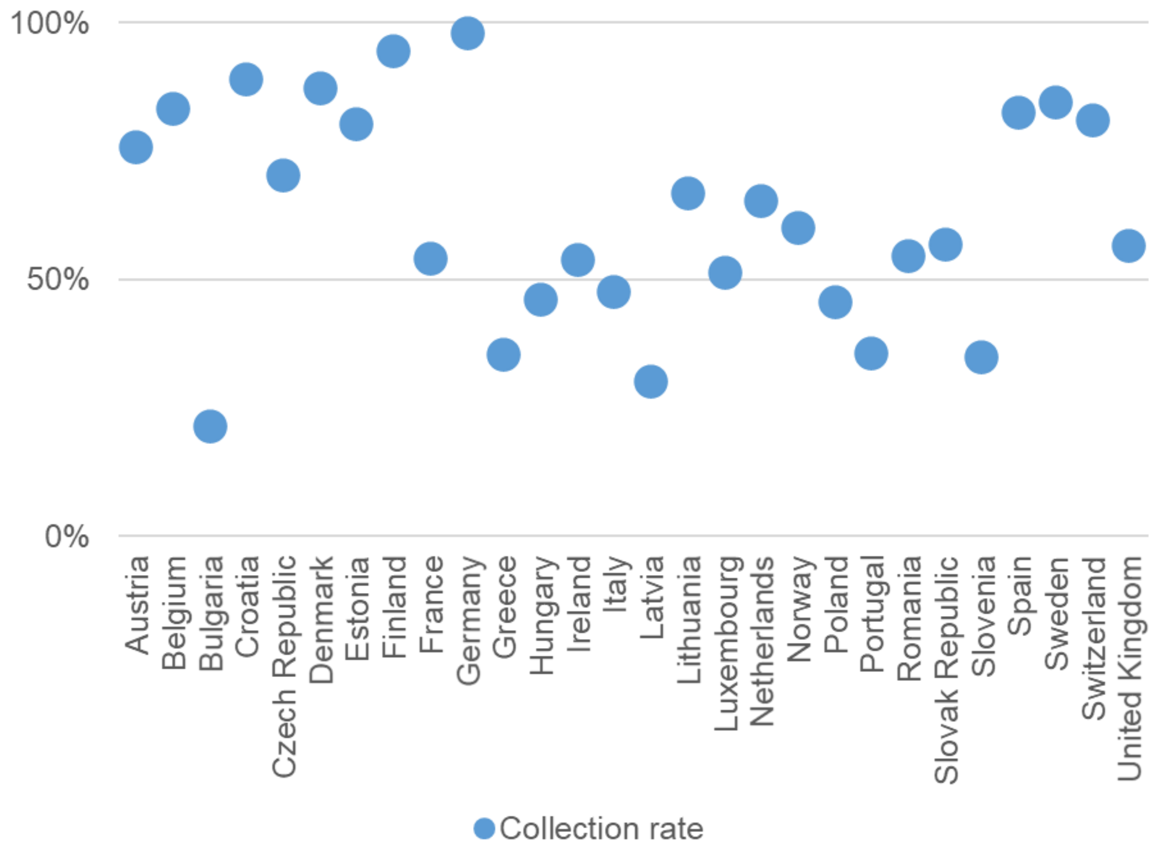
Poll Question

Supply chain challenges and potential disparities with demand

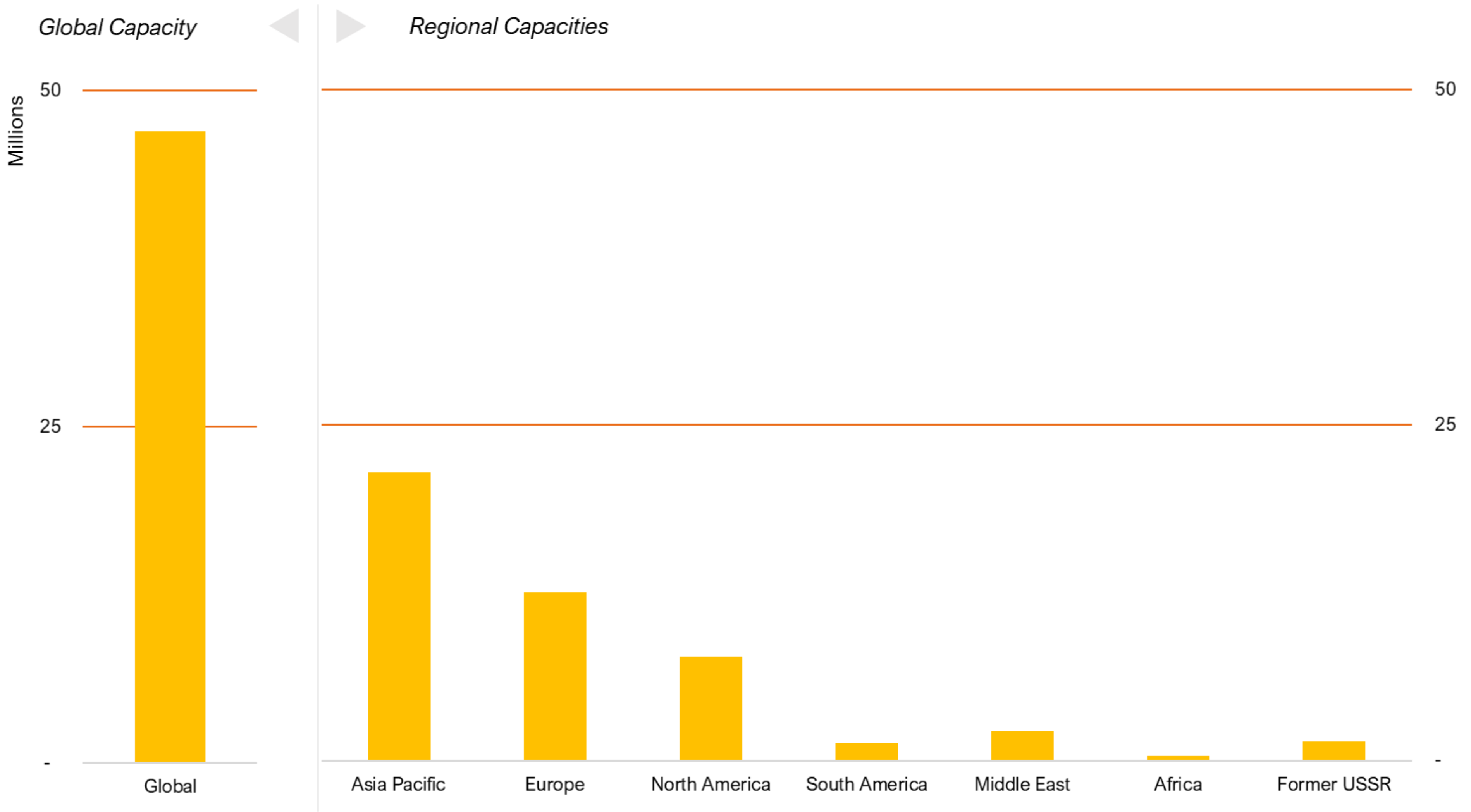
Challenges in collection and sorting

- Lack of harmonised collection and sorting infrastructure
- Impacts volumes **and** quality
- Low prioritisation of waste management investment
- The bottleneck to recycling streams

Case study: PET bottle collection rates 2019

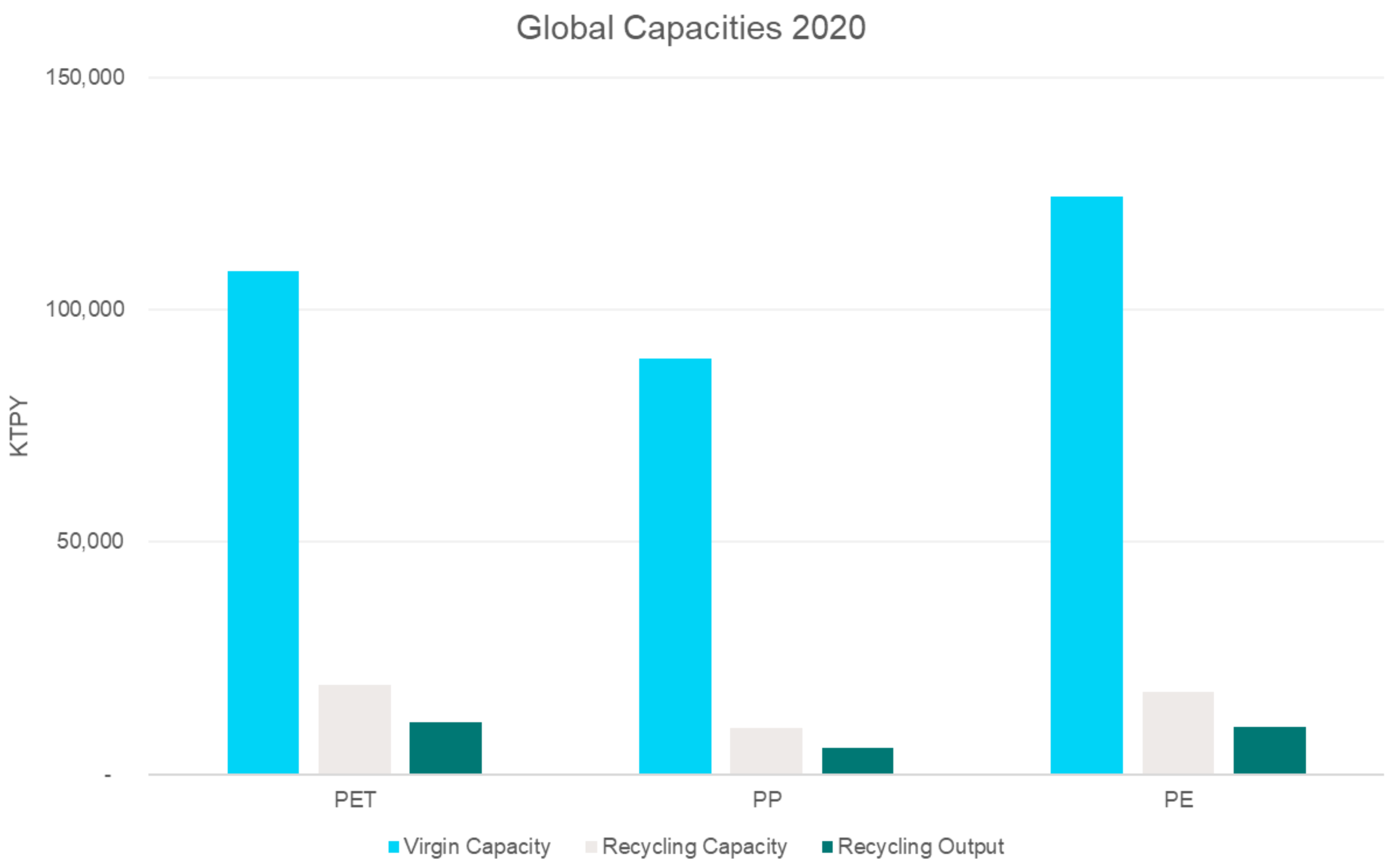


Supply Capacity by Region



Source: ICIS, Recycling Supply Tracker – Mechanical, 2020

Recycle capacity holds marginal share in virgin markets



ICIS: Plastics Recycling: State of the Union

<10%

Average estimated recycle share of global polymer capacity in 2020

PP 7%

Lowest recycle capacity and output compared to virgin capacity

I·C·I·S
Independent Commodity
Intelligence Services

Consequences for sustainability agenda in the market

Brand-owners pledges

50%

Recycled content on average

Brand owner pledges include recycled content targets:
A minimum of 25% and **average of 50%,** and
new short-term goals of 100%.

Reduced Virgin Plastic Usage	Higher Usage of Bioplastics	Bottle Collection Targets Set

Brand-owner pledges far reaching

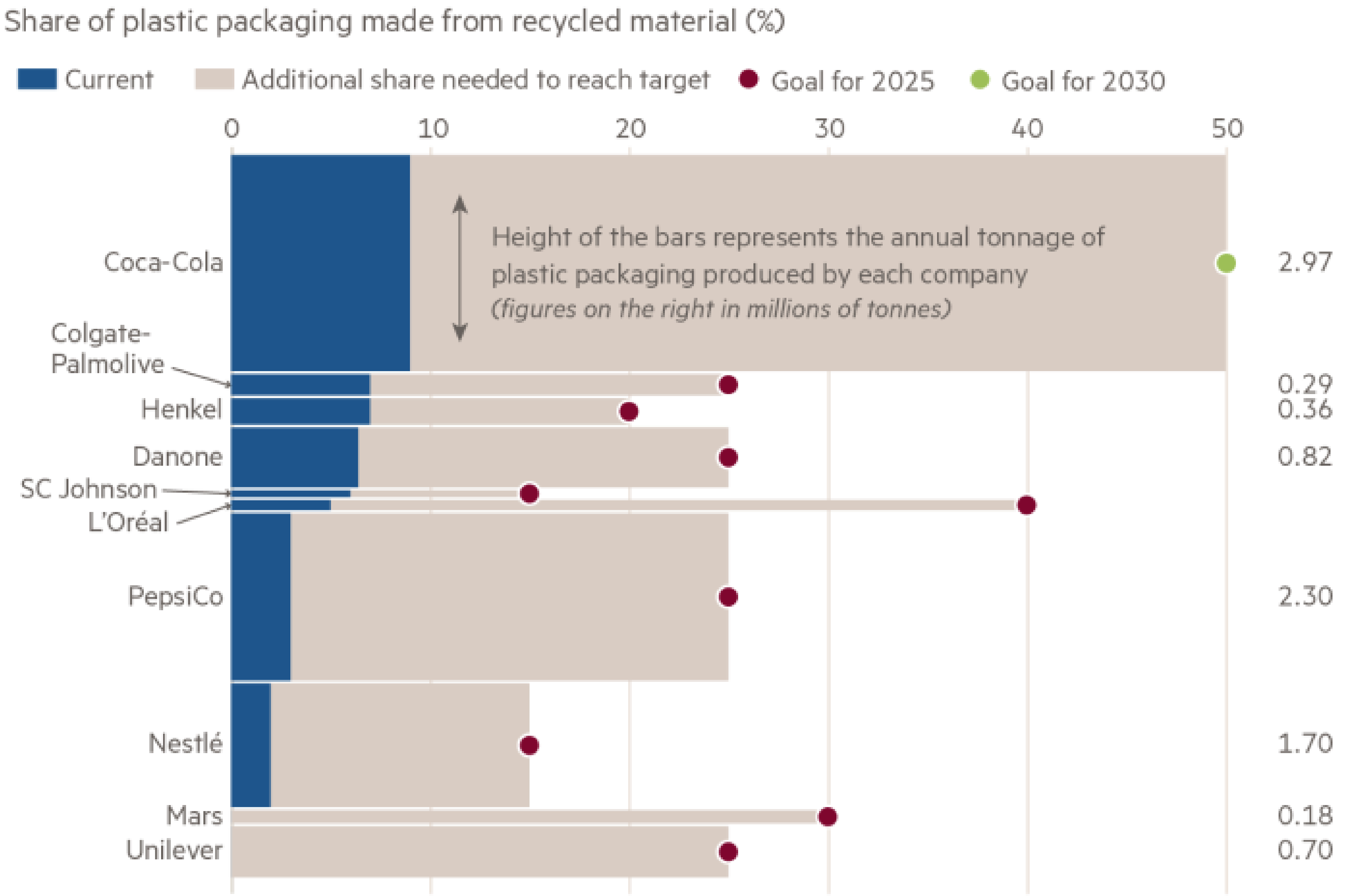
Permeates all industry sectors

Multinationals and National

All reducing use of virgin plastics

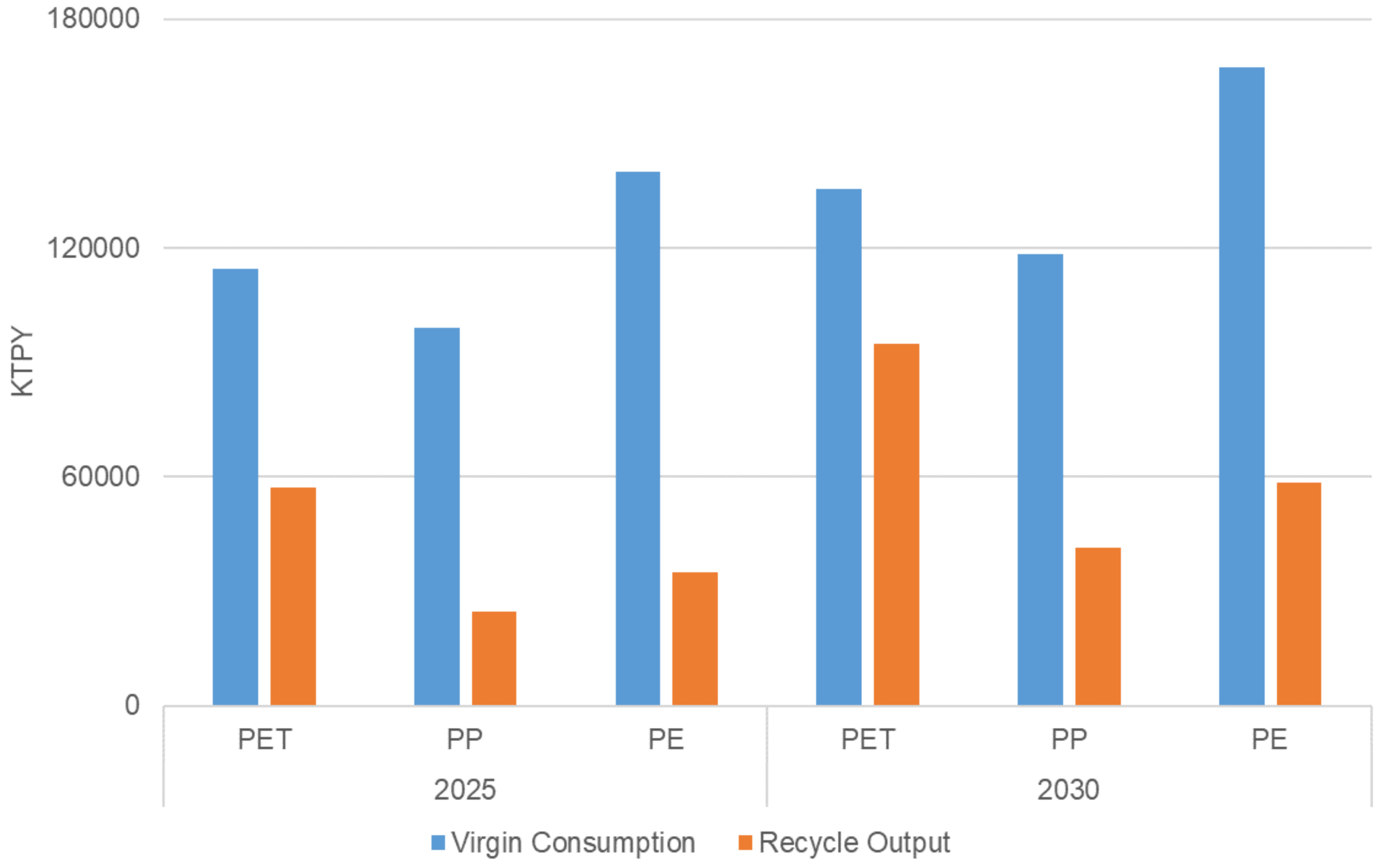
Increasing use of recycled plastics and alternatives

Demand from FMCGs



Source: *Ellen MacArthur Foundation, Financial Times, 2019*

Required recycle volumes to achieve industry targets



82%

Annual growth rate for RPET to achieve 50% recycle content rate in 2025

68%

Annual growth rate for RPP to achieve 25% recycle content rate in 2025

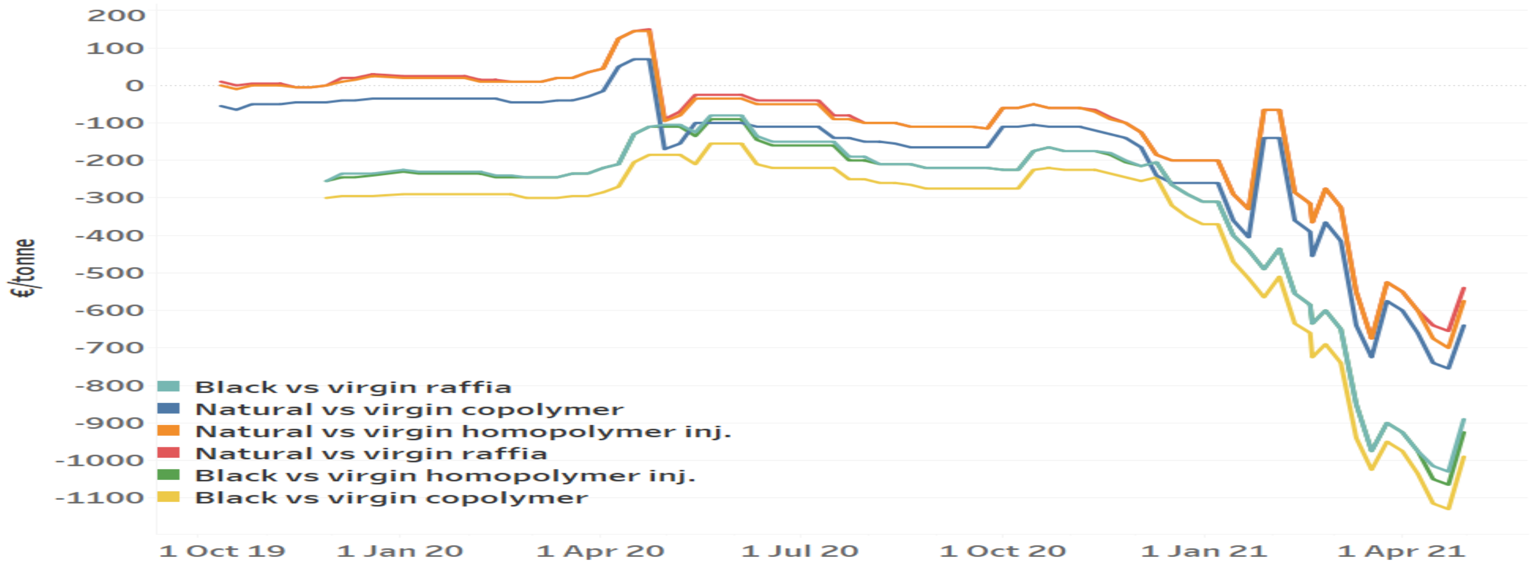
Source: *ICIS, Supply and Demand Database*

Pricing volatility and the split away from Virgin

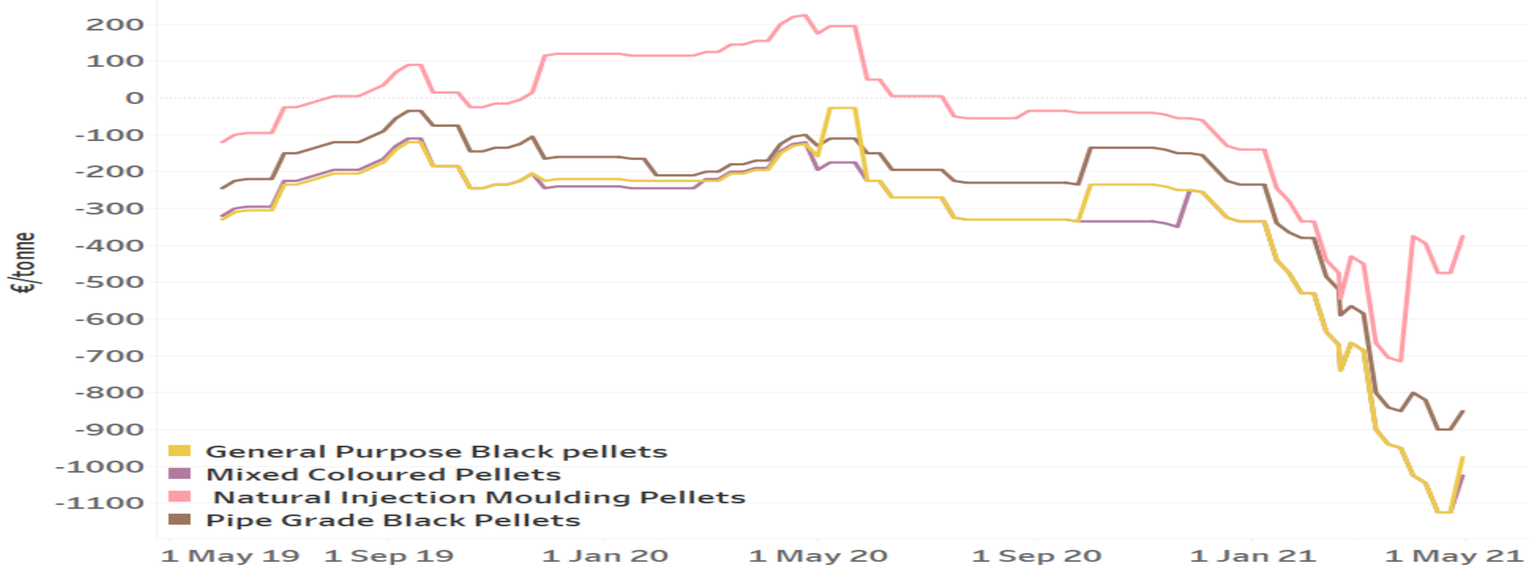
The last year has seen unprecedented volatility

- In Q2 2020 recycled polyolefin prices were at their least competitive on record with virgin
- Since Q1 2021 recycled polyolefin prices have been at their most competitive
- This is despite R-PP values hitting record highs
- The changeability of the spread shows how far values have decoupled from virgin

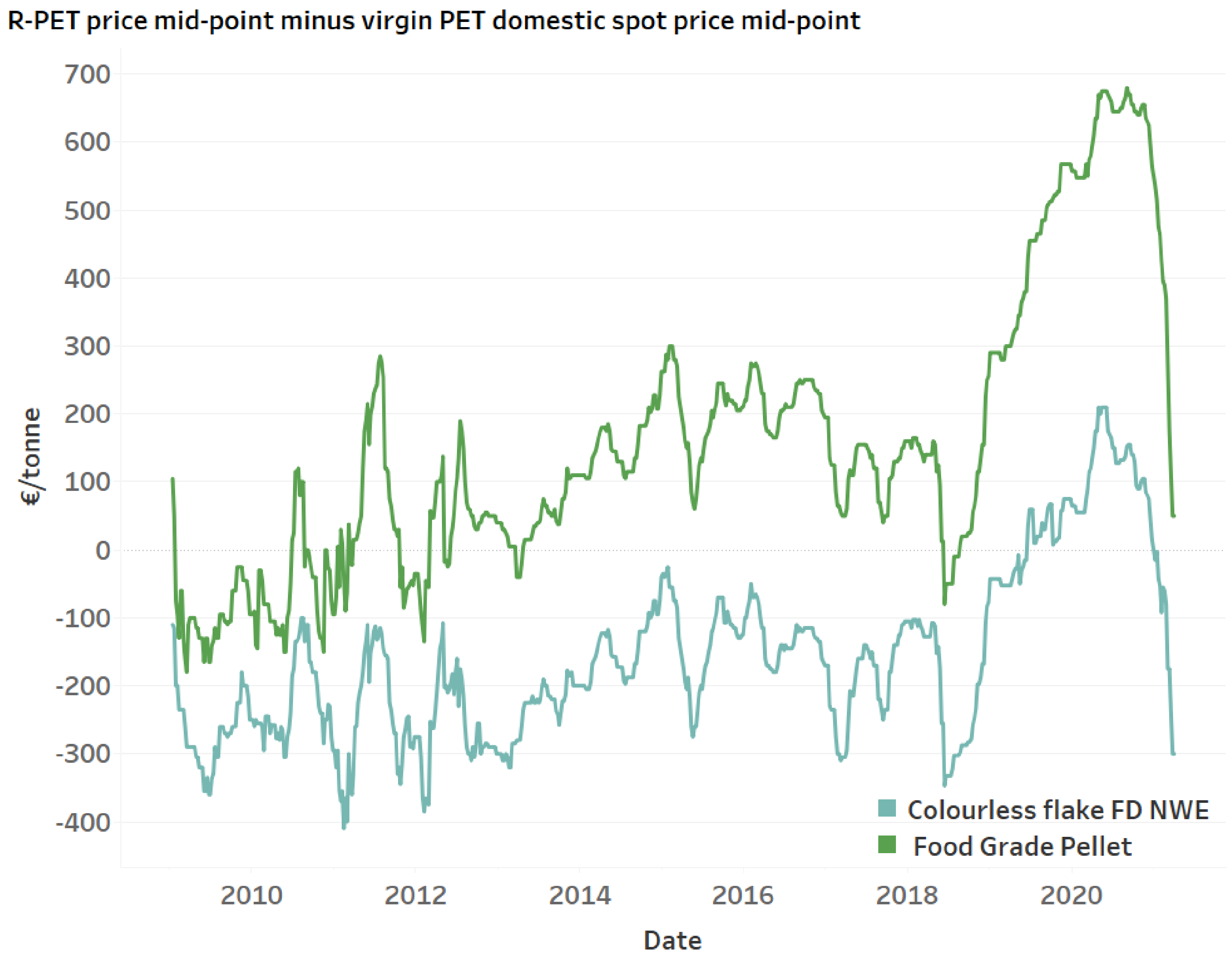
R-PP natural pellet monthly prices minus virgin PP spot price



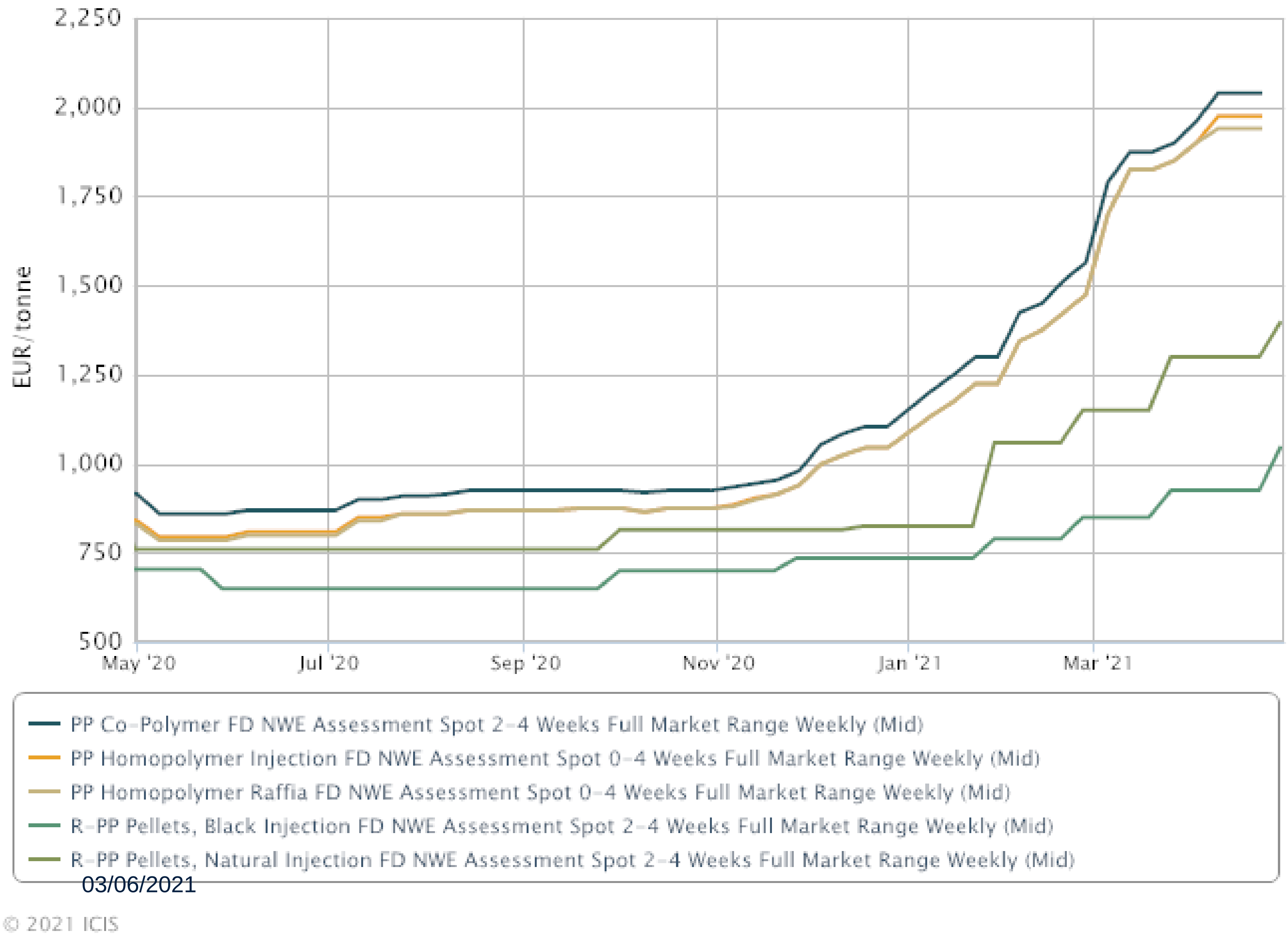
R-HDPE price mid-point minus virgin HDPE Film spot price mid-point



At points in the past year R-PET values have been almost double virgin, and at multi-year lows against virgin values

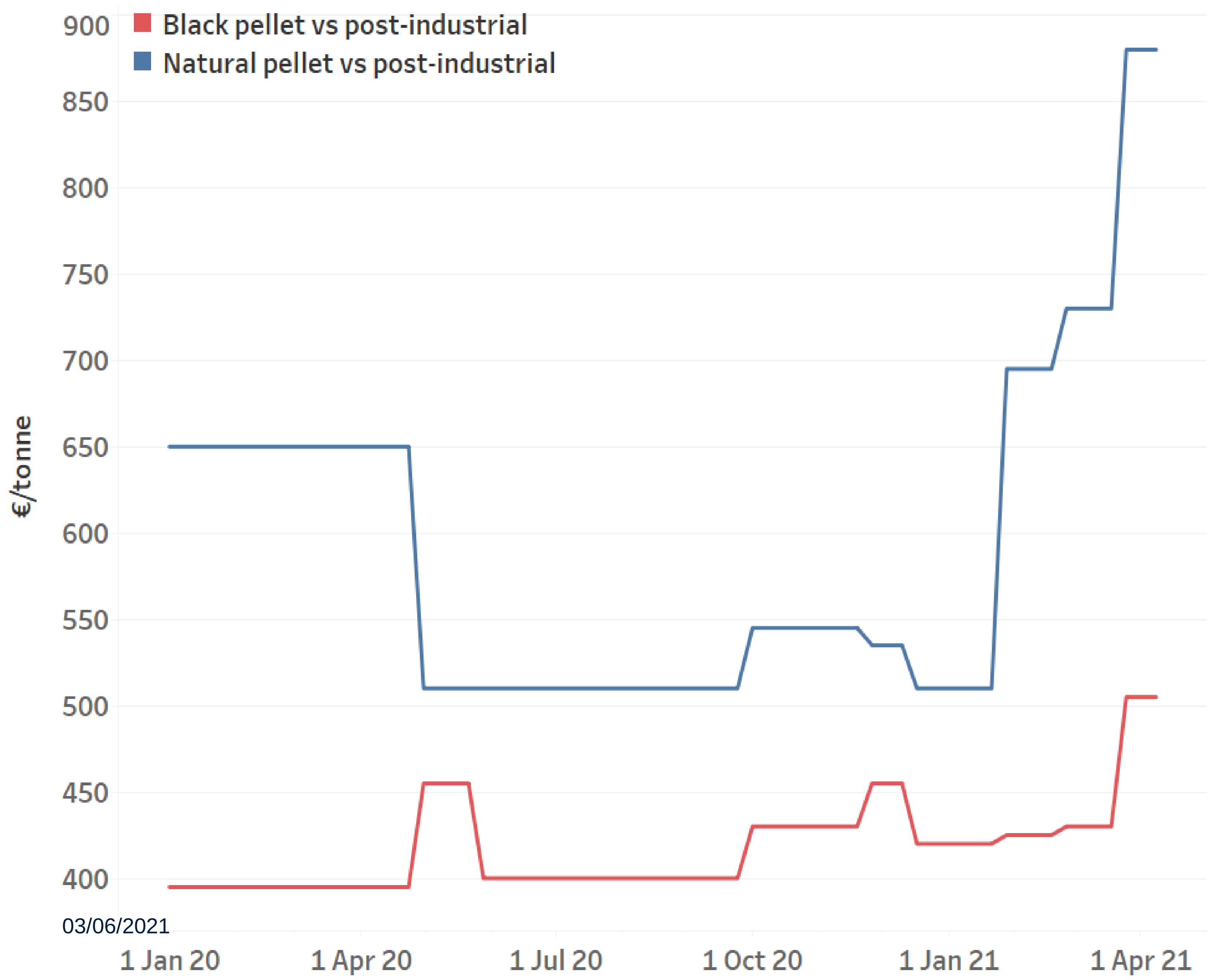


R-PP vs virgin values April 2020-April 2021



It has largely been changes in virgin values that have shifted the volatility of the spreads

R-PP pellets vs post-industrial bale spread

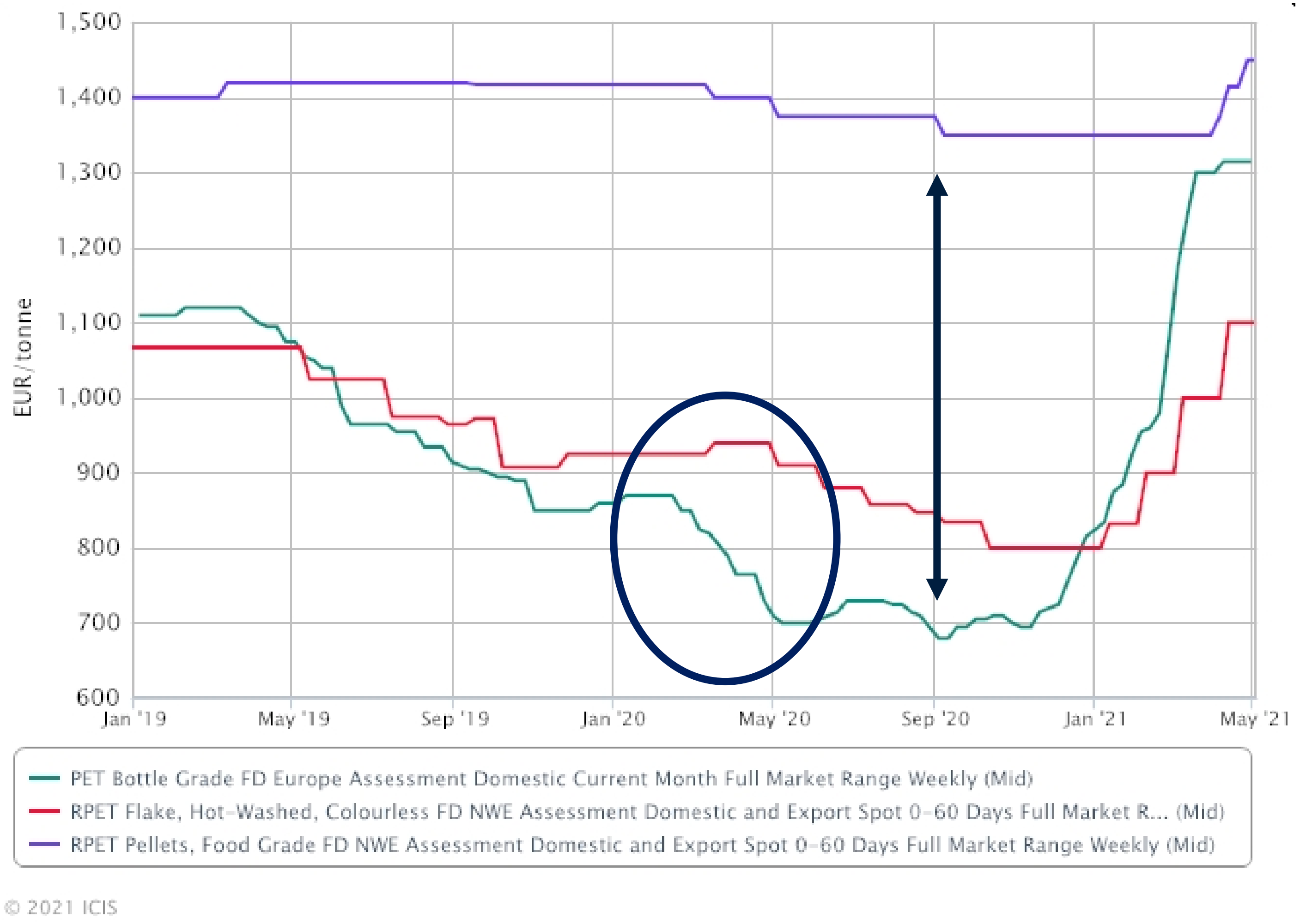


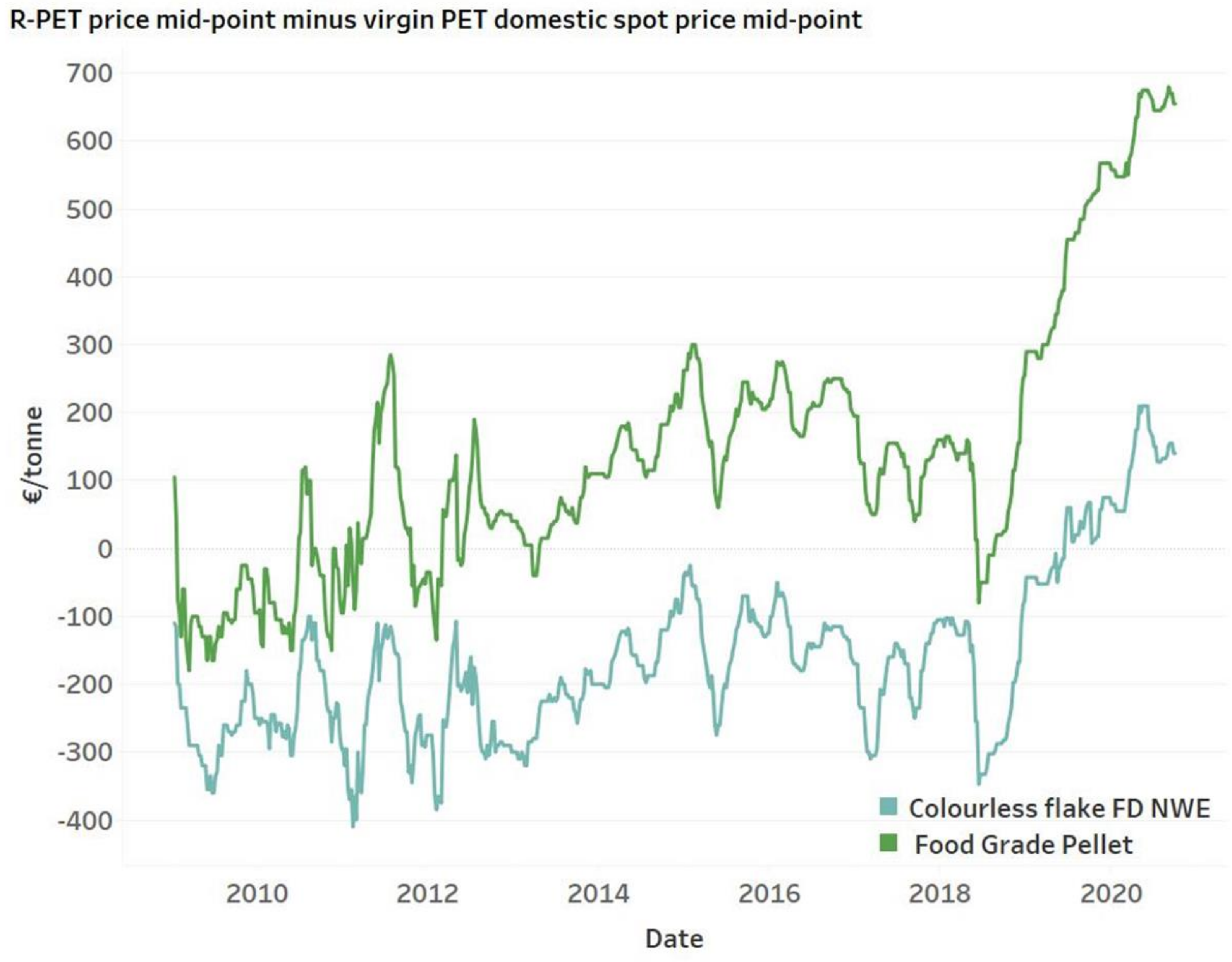
There is also a growing spread between packaging grade profitability and non-packaging

The Toll of the Pandemic

Case study: Impact on the R-PET market

- ‘Traditional’ R-PET prices tracked virgin, flake and food-grade pellets historically linked
- Sustainability goals create new demand
- Drops in crude, virgin as a result of global lockdowns (April 2020)
- Massive substitution away from R-PET, particularly in sheet sector
- Recyclers’ margins, operating rates hit





100%

Premium of R-PET FGP over virgin PET September 2020

30%

Premium of hot-wash colourless flake prices over virgin

Wider recycled polymer issues

- Collection and sorting impacted during early phases of pandemic
- Testing cycles for recycled polyolefins postponed during 2020
- Hygiene concerns lead to more substitution back to virgin
- Closures of business/industry sectors hit supply and demand for recycled polymers

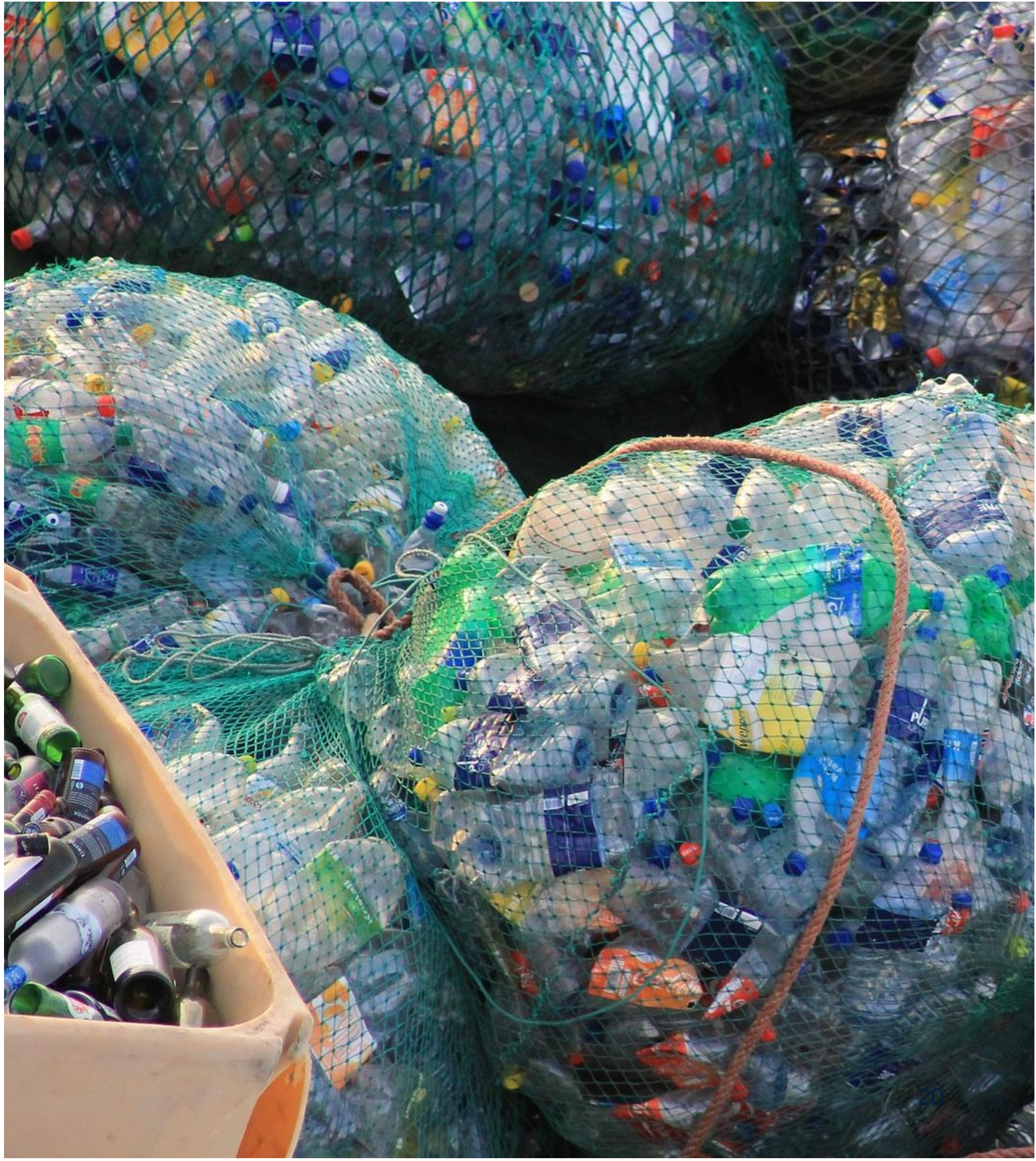


Photo: Rex Features

Poll Question

Independent Commodity Intelligence Services

Sustainability in the Post-Corona World

What next for Recycled Plastics?

Demand

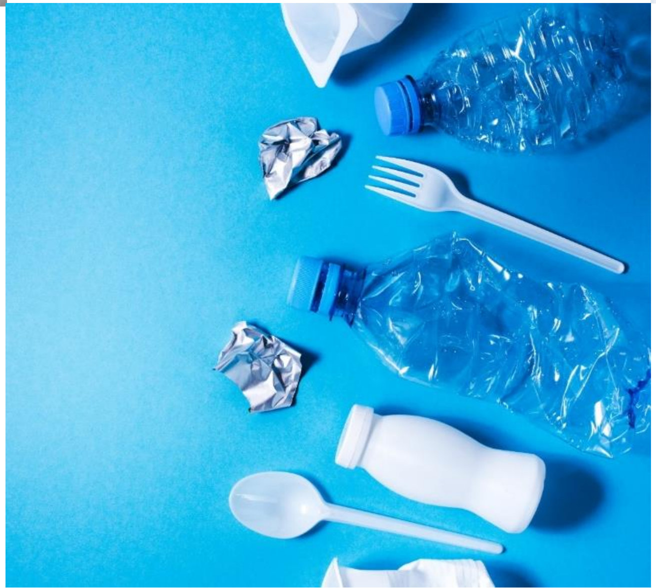
- Brand pledges increasing
- Questions around lockdowns, vaccinations impacting demand

Consumer behaviour

- Better consumer education needed
- Substitution away from plastics

Legislation

- EU Charge a big unknown.
- Delays in legislation, EPR/DRS schemes



Industry development

- Increased extrusion capacity
- Emerging markets: R-PS
- Chemical recycling

Sustainability targets endure

- Increasing number of sustainability targets/pledges despite on-going pandemic
- Brands pledging above and beyond legislative targets
- Growing demand from non-regulated sectors:
    - Tray-to-tray
    - Textiles
- Carbon emissions and the move away from fossil fuels

10739999a *Xinhua/Shutterstock*
China Cpi in July Rise - 10 Aug 2020 Children select drinks at a supermarket in Handan City, north China's Hebei Province, Aug. 10, 2020. China's consumer price index (CPI), a main gauge of inflation, rose 2.7 percent year on year in July, the National Bureau of Statistics said Monday.

Taxing Times: The Rise of Regulations

Upcoming Europe taxes

Country	Amount	Payable by	Active from	Exemptions
Italy	€450/tonne	Packaging producers	July 2021	Recycled material – details had been expected in April
Spain	€450/tonne	Packaging producers	TBC	Recycled material of Spanish origin – details forthcoming
UK	£200/tonne	Packaging producers	April 2022	Packaging with minimum 30% recycled content

- It remains unclear how these taxes will dovetail with the EU plastics charge

EU Plastics Charge

- Came into effect 1 Jan 2021
- Charged to nation states *not* supply chains
- Charged at €800/tonne of non-recycled plastic packaging
- Calculated using pre-existing reporting measures under the Waste Directive
- Part of the COVID-19 recovery bill, revenues generated will contribute to post-pandemic recovery

EU recovery money protest in Brussels, Belgium - 17 Jul 2020 Euro banknoets are seen on the street pavement as activists (unseen) protest for a green and just recovery in front of the European Council in Brussels, Belgium, 17 July 2020. European Union leaders will discuss plans responding to coronavirus crisis and new long-term EU budget at the special European Council on 17 and 18 July.

Why the EU plastic charge will likely lead to regulatory divergence

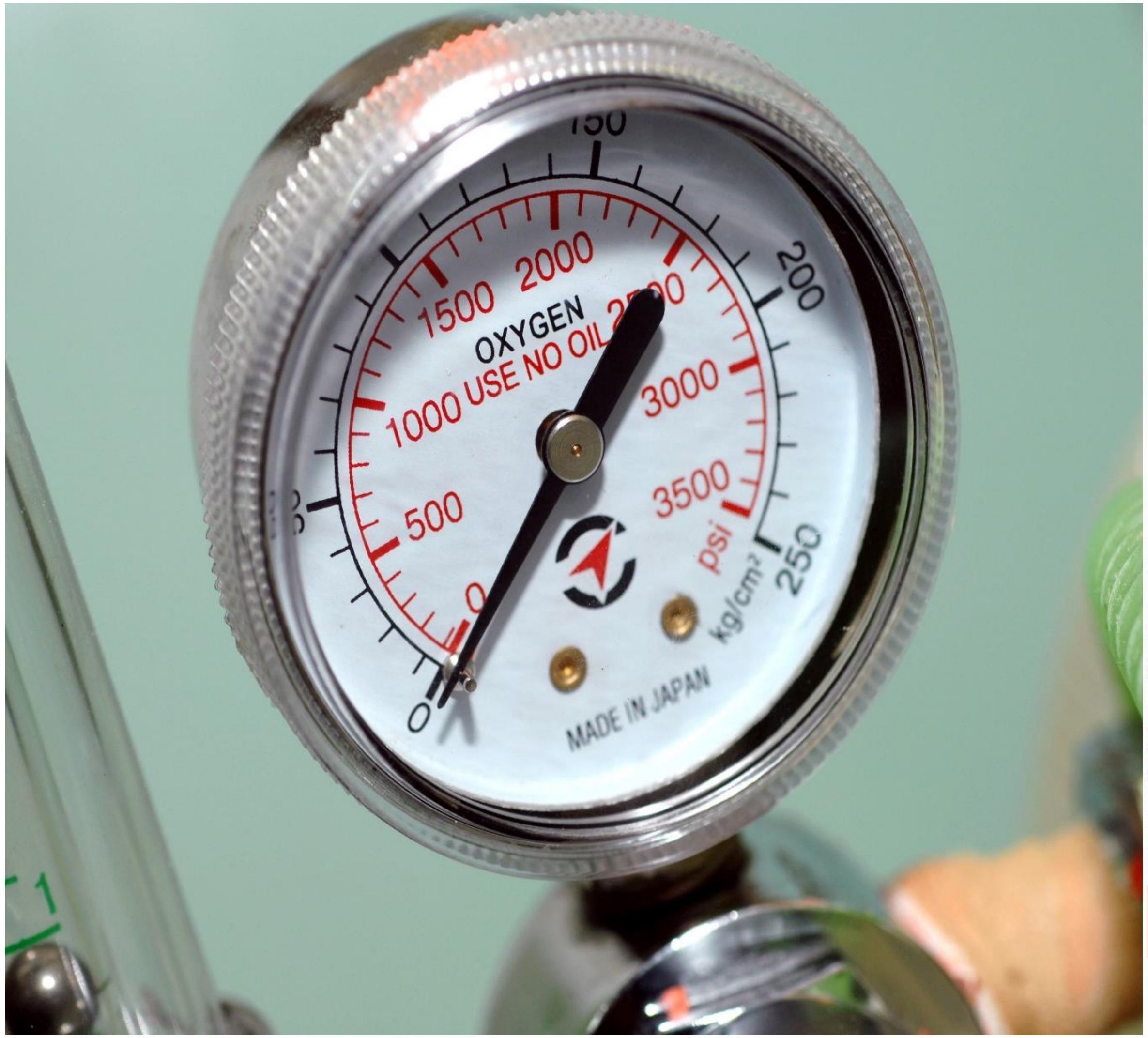
- There are many ways the charge could be passed through to supply chains
- The charge could be passed on to different parts of the supply chain in different countries
- Some countries could decide to levy a charge higher than €800/tonne, others lower, and could introduce additional conditions on legislation
- End-result could be ‘recycling tourism’

The Spectre of Chemical Recycling:

- Ideal world vs. Real World: The Battle for Feedstock
- The Changing State of Things: Where We Are and Where We're Going

How chemical recycling may compete for bale supply

- In theory, chemical recycling works in tandem with mechanical recycling
- Moisture and PVC limits mean waste for chemical recycling still needs to be sorted
- Many chemical recyclers looking to use pre-sorted bales as feedstock
- This puts them in direct competition with mechanical recycling



And where are we with chemical recycling?

HIGH EXPECTATIONS

Chemical recycling is expected to process larger volumes of feedstock. It is also expected to overcome limitations of mechanical recycling.

INDUSTRIAL SCALE IN 5-10 YEARS

Indications are commercial plants could be on stream earlier.

UNKNOWNS

Environmental impact

Legal status

Expense

Yield

No clear leading technology

ICIS Recycling & Sustainability Contacts

Editorial:

Senior Editors, Recycling:

Mark Victory
mark.victory@icis.com

Matt Tudball
matt.tudball@icis.com

Analytics :

Senior Analyst, Plastic Recycling, & Global Analyst Team Lead
Helen McGeough
helen.mcgeough@icis.com

Global Recycling Analyst Team:

Daria Grossi (Europe)
daria.grossi@icis.com

Carolina Perujo Holland (Europe)
carolina.perujoholland@icis.com

Paula Leardini (Americas)
paula.leardini@icis.com

Hyejin Kim (Americas)
hyejin.kim@icis.com

Jia Hui Tan (Asia)
jia.hui.tan@icis.com

Joshua Tan (Asia)
joshua.tan@icis.com