



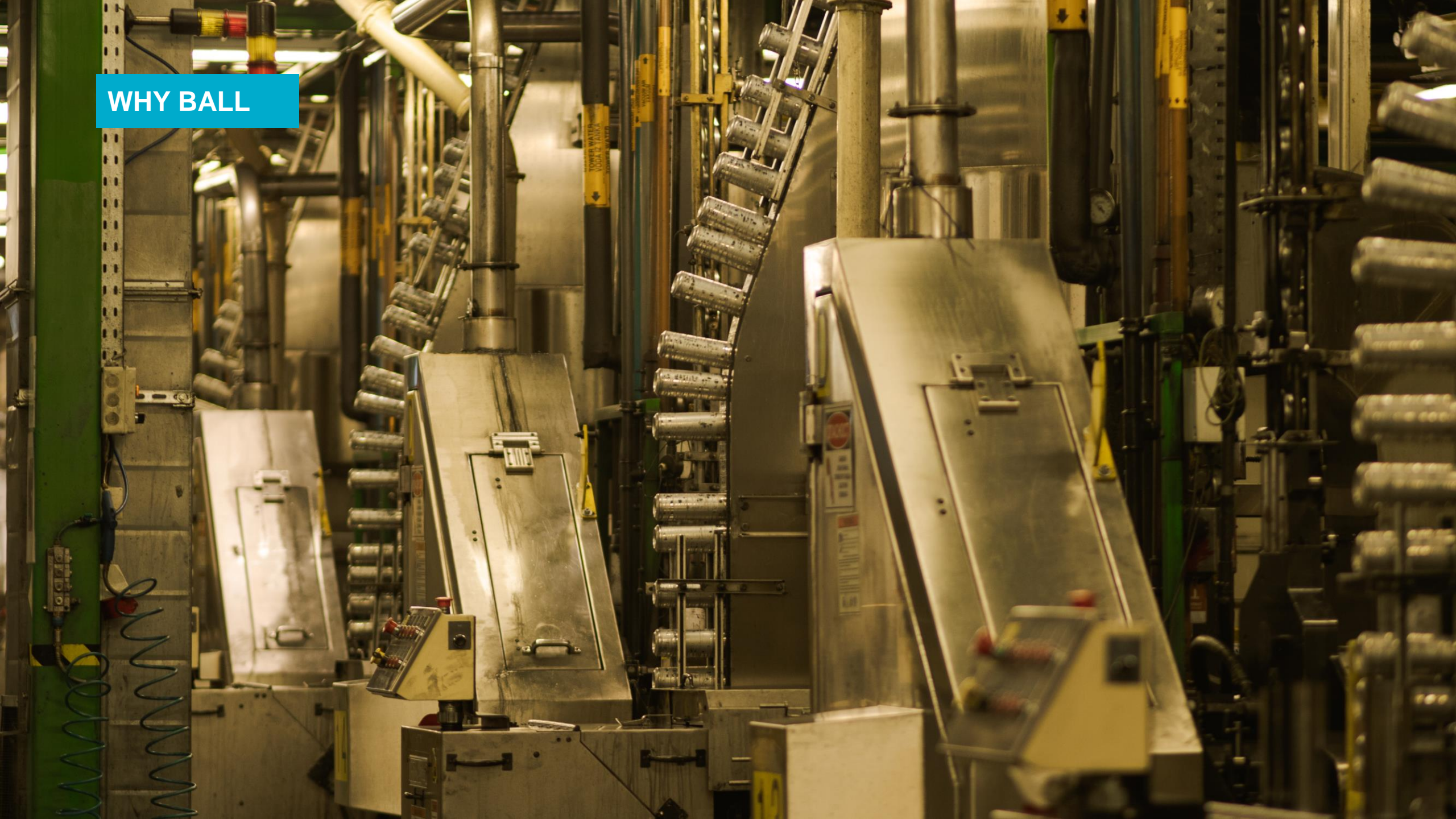
SUSTAINABILITY AND RECYCLABILITY OF CANS

September 26, 2020

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WHY BALL





WHY THE CAN IS THE WORLD'S MOST RECYCLED BEVERAGE CONTAINER



Product design: **homogenous material**

Easy and economically viable to handle

Pull tab **integrated**, comes back with the can

Not a contaminant for other materials

Fully recyclable despite of colours and format

Metal recycles forever, not just a few times

High value recycle: €800 - 1,000/tonne



KEY FACTS ABOUT CAN RECYCLING THAT ARE OFTEN OVERLOOKED



74%
European recycling rate of aluminum beverage cans in 2015



All cans are **equally** recyclable, irrespective of color or design



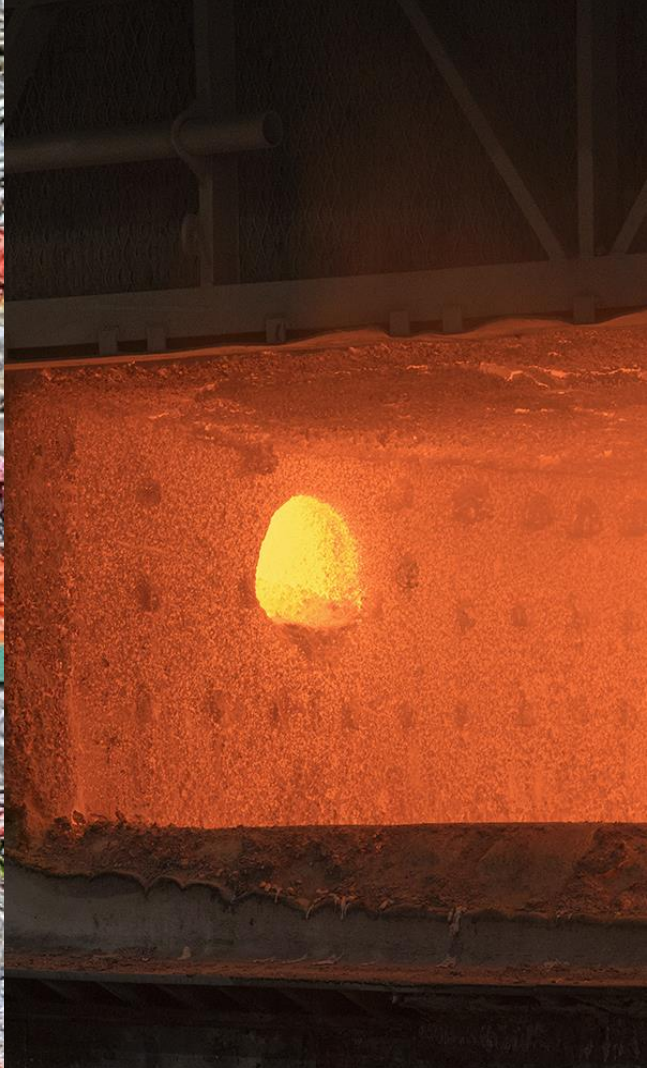
EASY
Cans are easy to sort and recycle using **infrastructure that is already in existence**



Metals do **not lose quality** when recycling

ALUMINIUM CANS: THE WORLD'S MOST RECYCLED BEVERAGE PACKAGING





HOW EUROPEAN PACKAGING LEGISLATION IS ACCELERATING

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NEW EU METHOD FOR CALCULATING RECYCLING RATES: REAL RECYCLING!



INCINERATION ROUTE

Incineration will not count any longer
Metal recovery from bottom ashes will still be counted



RECYCLING ROUTE

Collect



Sort



Extra Sort



Treatment



Re-incorporation



Old EU method of calculation

Export will not count any longer
Only the material that are input for the recycling process will be counted

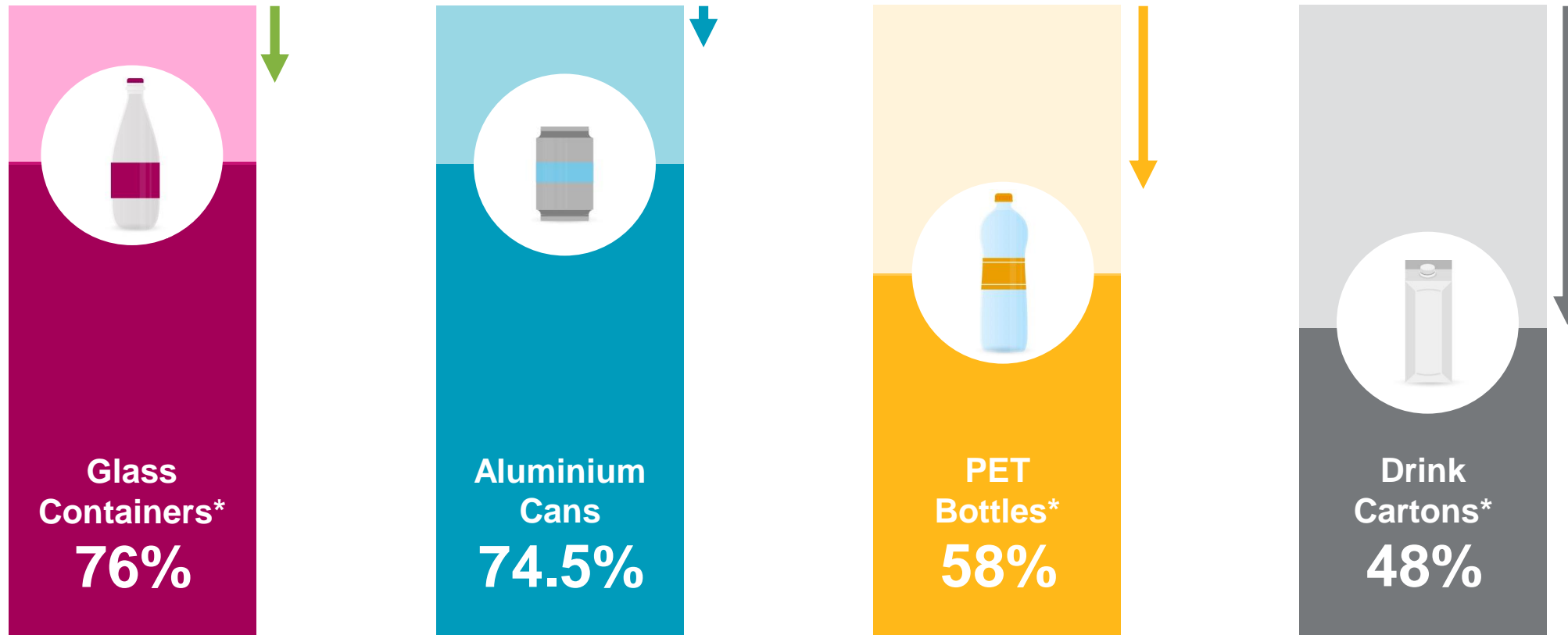
NEW EU method of calculation



THE RECYCLING RATE FOR ALL MATERIALS WILL GO DOWN...



...once the EU changes the point of measurement, but the difference between metal and other packaging reported recycling rates are likely to increase substantially.



Source: FEVE, 2017 >> MPE+European Aluminium, 2017 >> PETCore, 2017 (actual recycled 36%) >> ACE, 2017

EXAMPLES OF RECYCLING ISSUES FACED BY OTHER BEVERAGE CONTAINERS



- Weight
- Breaks

- Colour

- Fine particles

- Low value



- Minimum collection rate

- Black plastics
- Coloured PET
- Export market
- Non-bottle PET in the bottle fraction

- Cap, silicone valve, glue, label

- Opaque / TiO₂
- Yield loss
- Degradation
- High cost

- Nurdles / pellet
- Minimum rPET content
- EFSA



- Lack of Infrastructure
- Contamination to paper and card
- Low value

- Multi-material
- Yield loss
- PolyAl
- Fibre shortening

- End markets

REAL RECYCLING WILL SOON BE THE NORM. WHAT DOES IT MEAN?



In the future, for a packaging to be claimed as recyclable, it will have to satisfy all the following points:



Collected



Recycling process that works



Easily sorted



High yields

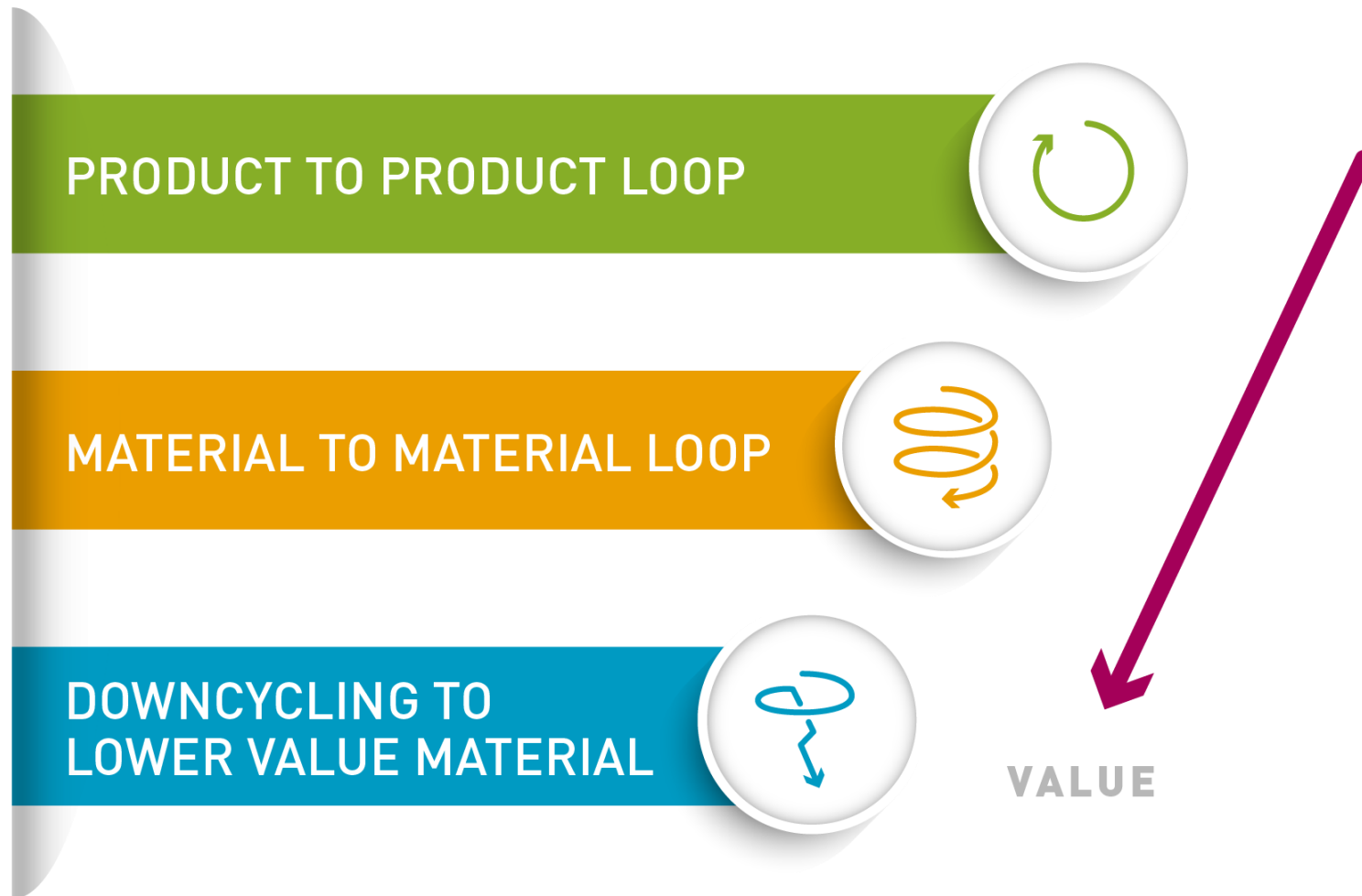


Each part easily separated



Output material valuable with an existing market

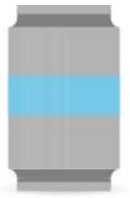



NOT ALL LEVELS OF RECYCLING ARE THE SAME



APPLYING RECYCLING LOSS FACTORS TO COLLECTION RATES



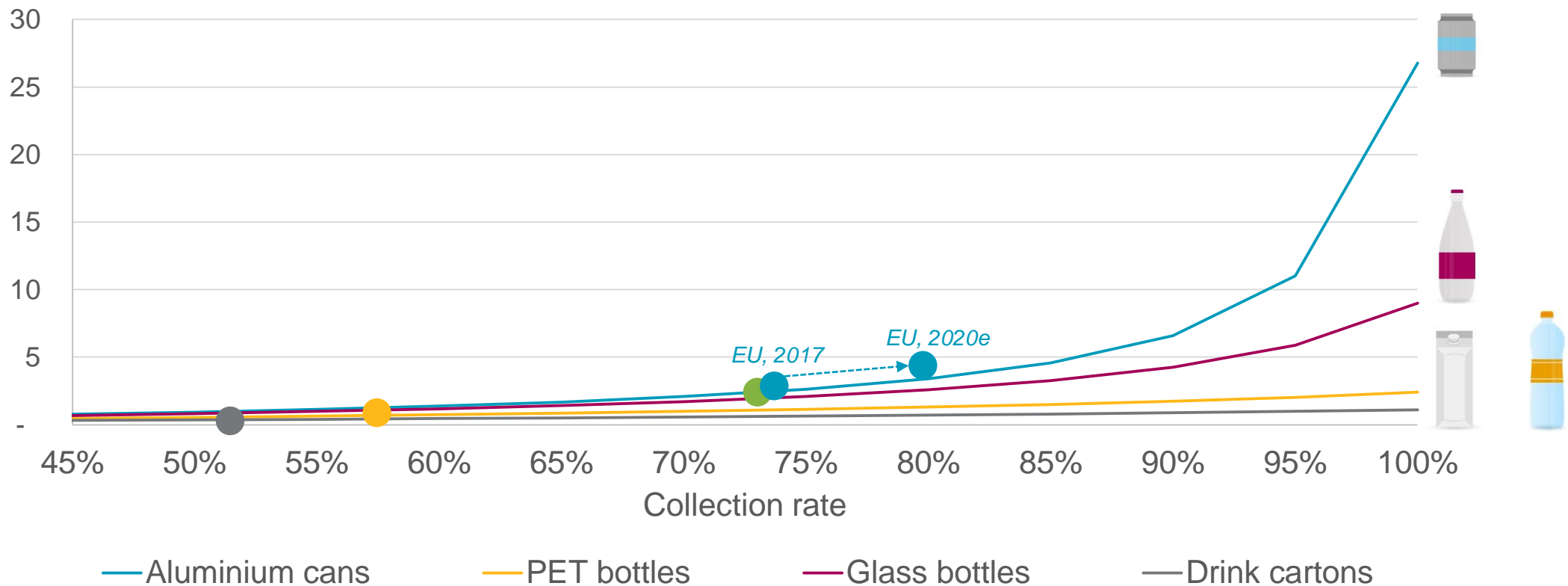
The European average recycling rates and recycling process yields are estimated as per the table below

	<p>Collection rate = 74% Recycling yields = 96.5%</p>		<p>Collection rate = 56% Recycling yields = 71%</p>
	<p>Collection rate = 73% Recycling yields = 90%</p>		<p>Collection rate = 48% Recycling yields = 52%</p>

IN THE UPCOMING CIRCULAR SOCIETY, METAL'S ETERNAL RECYCLABILITY WILL FAIR SIGNIFICANTLY BETTER, COMPARED TO OTHER OPTIONS



Number of extra packaging units possible to make with the material remaining in the system in multiple recycling cycles



The higher the collection rate (which is the trend), the more important the recycling yields are.

THE BEAUTY OF ALUMINIUM: HIGH RECYCLING YIELDS. UNMATCHED.



1.5% of weight is lacquers and inks responsibly removed used for thermal needs in the furnace

Remelting losses are minimal (less than 2%), compared to other material's losses

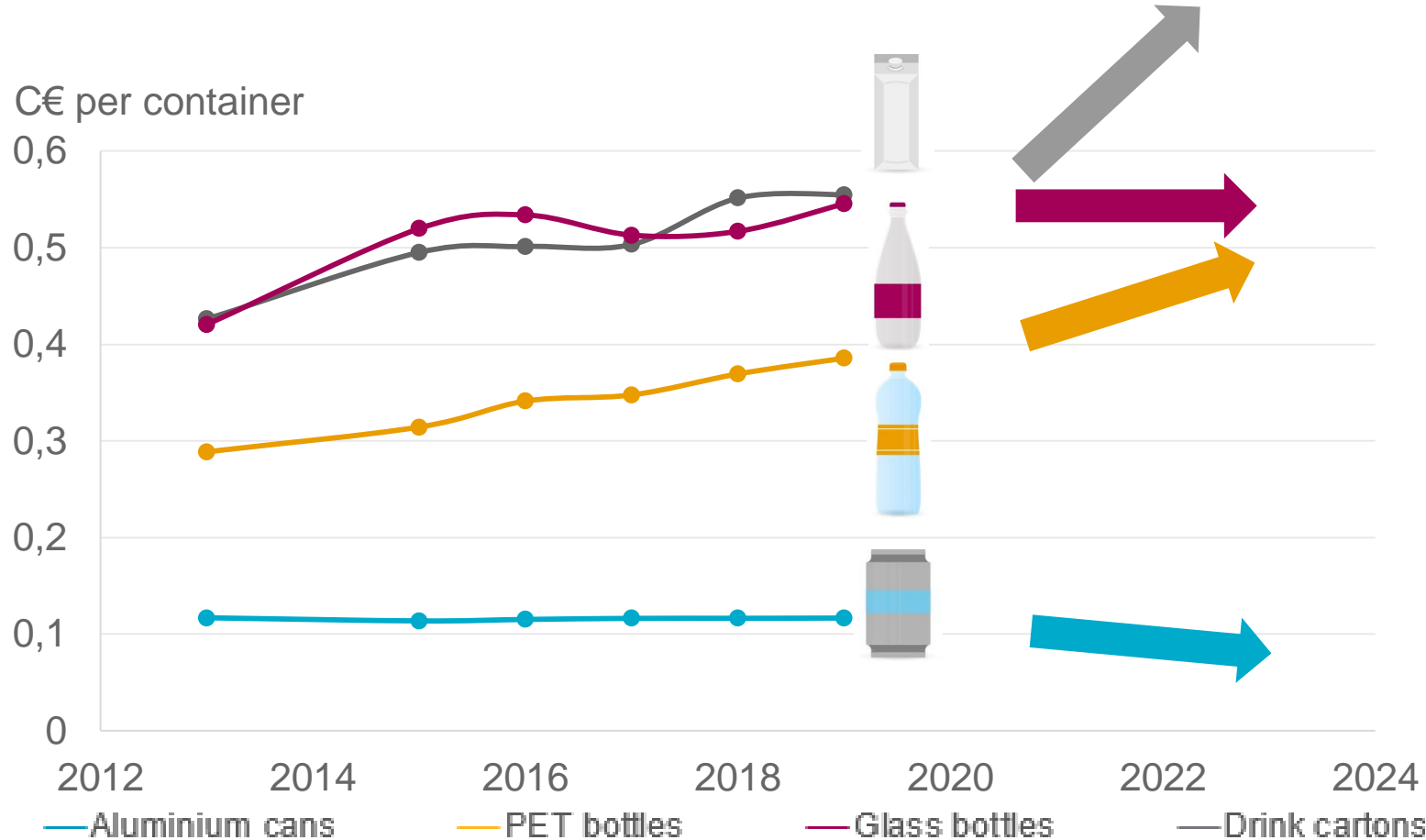




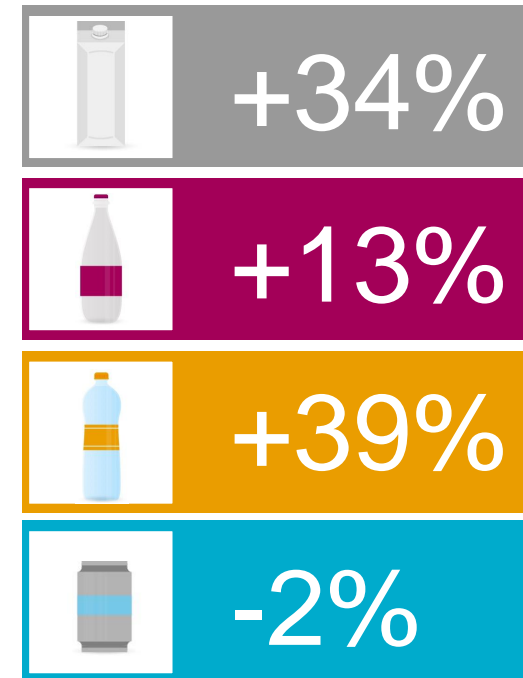
CANS HAVE THE LOWER GREEN DOT FEES IN AVERAGE IN EUROPE

Cans already have the lower green dot fees of beverage packaging in Europe...

...This trend will absolutely continue onwards, and turn into a significant competitive advantage



2019 vs 2014 basic EPR fees evolution



Source: PRO Europe, Participation Costs Overview 2013, 2015, 2016, 2017, 2018 and 2019, UK excluded, EPR fees are averaged from each country's GDP contribution.

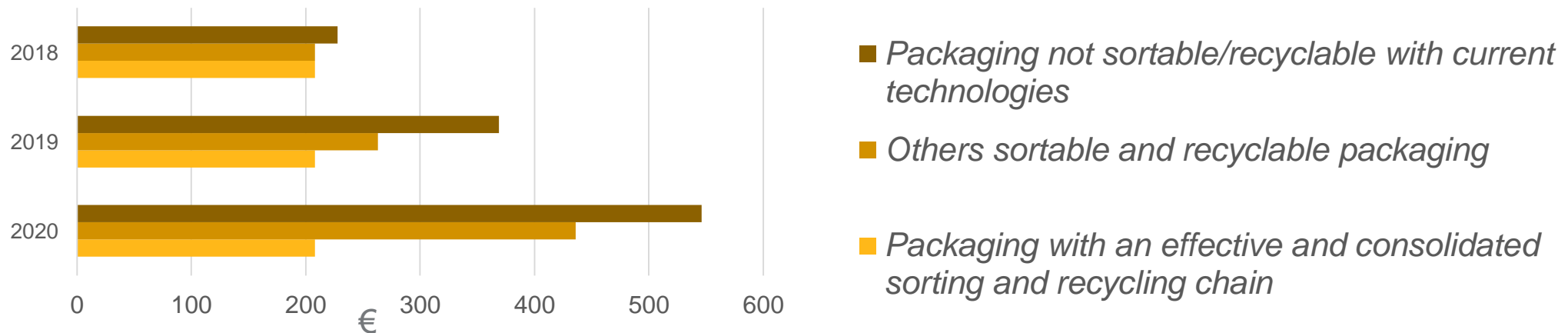
EXAMPLE OF EARLY ECOMODULATION IN ITALY



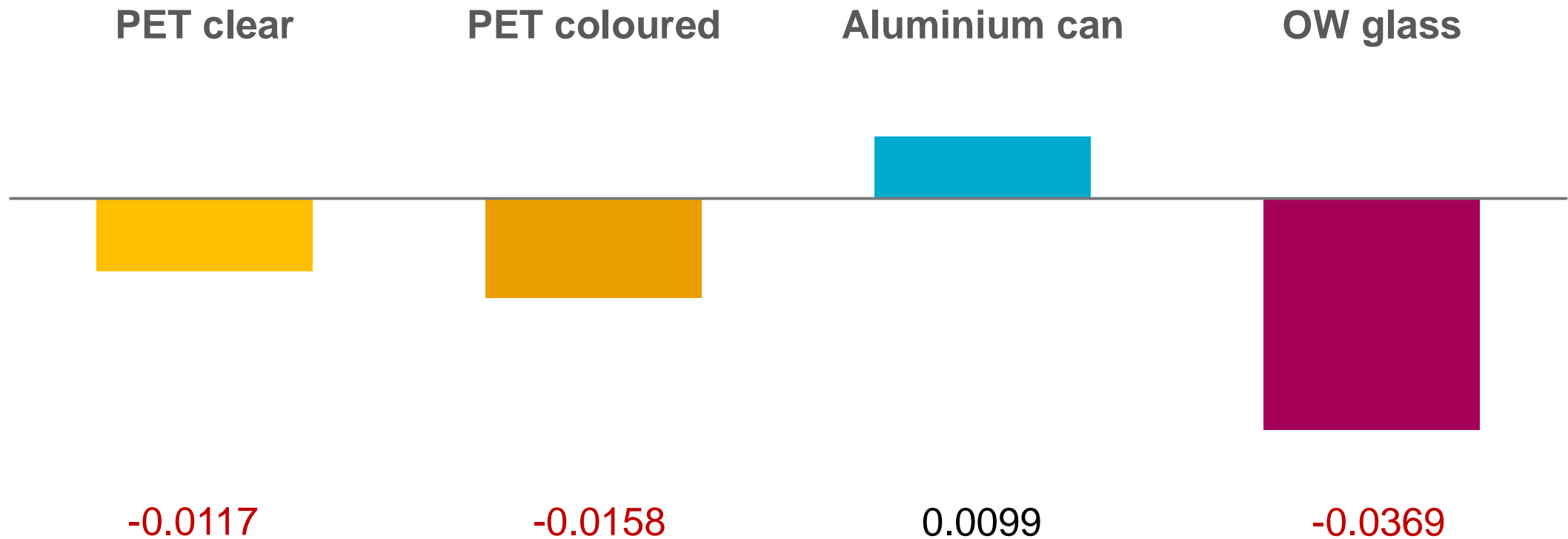
CONAI restructured the environmental contribution, rewarding recyclable materials and penalizing difficult to recycle materials.



Besides, to encourage the use of more recyclable packaging, the environmental contribution for plastic packaging is no longer unique but diversified based on the sortability and recyclability of the packaging.



CANS HAVE LOWEST NET COSTS IN A NORDIC / BALTIC DRS (€ / CONTAINER)



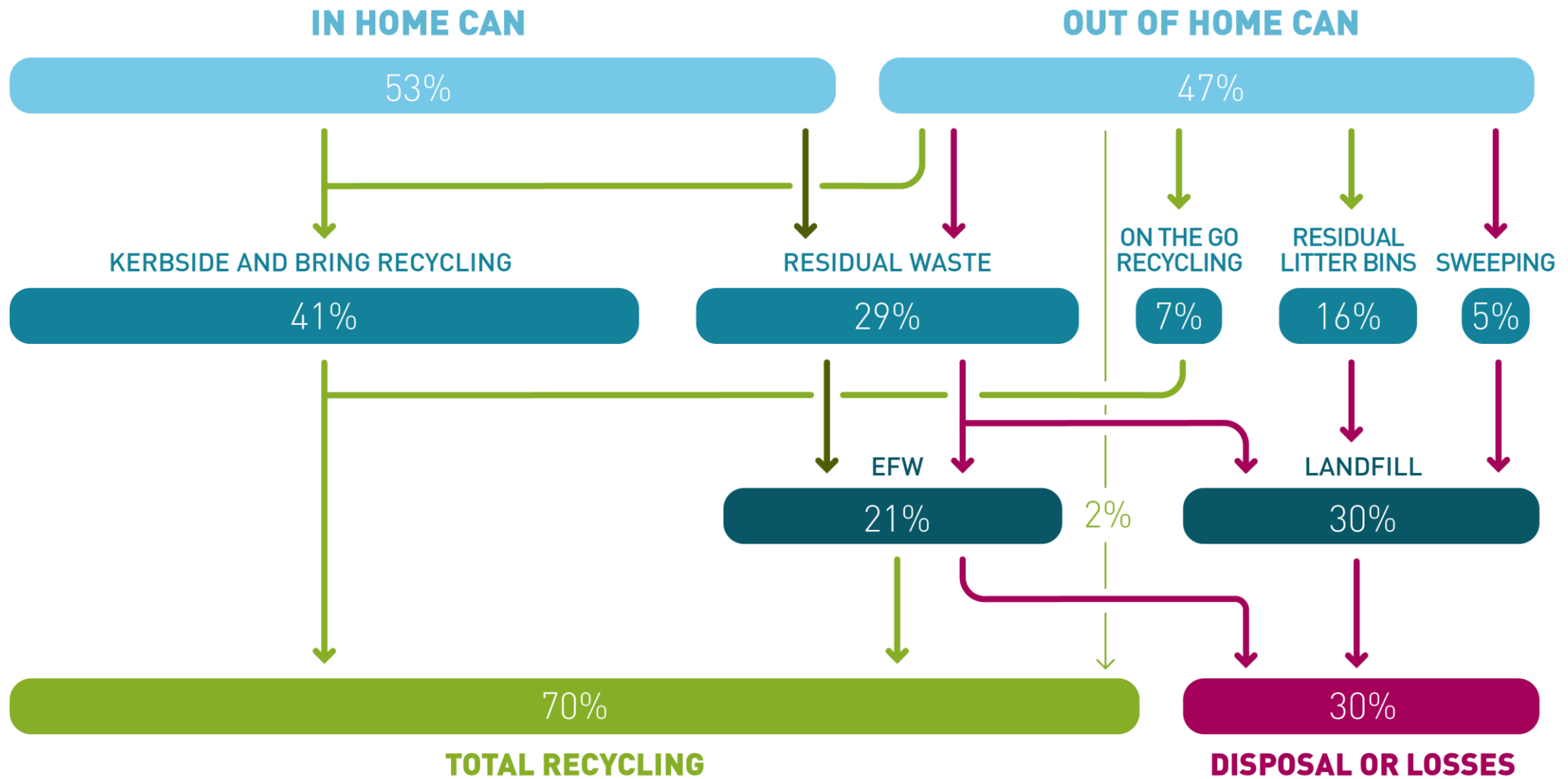


HOW TO ACHIEVE HIGH ALUMINIUM CAN RECYCLING

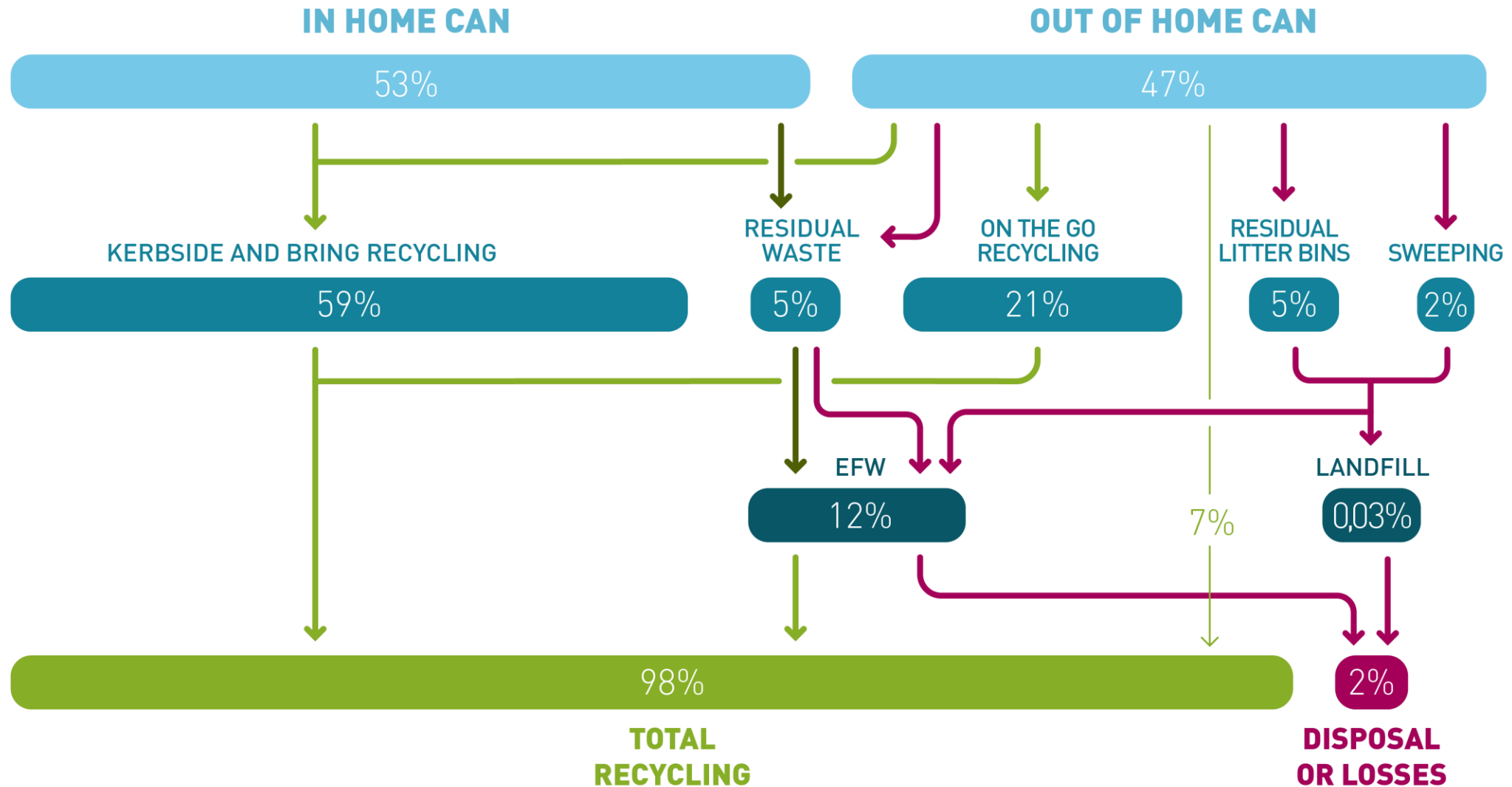
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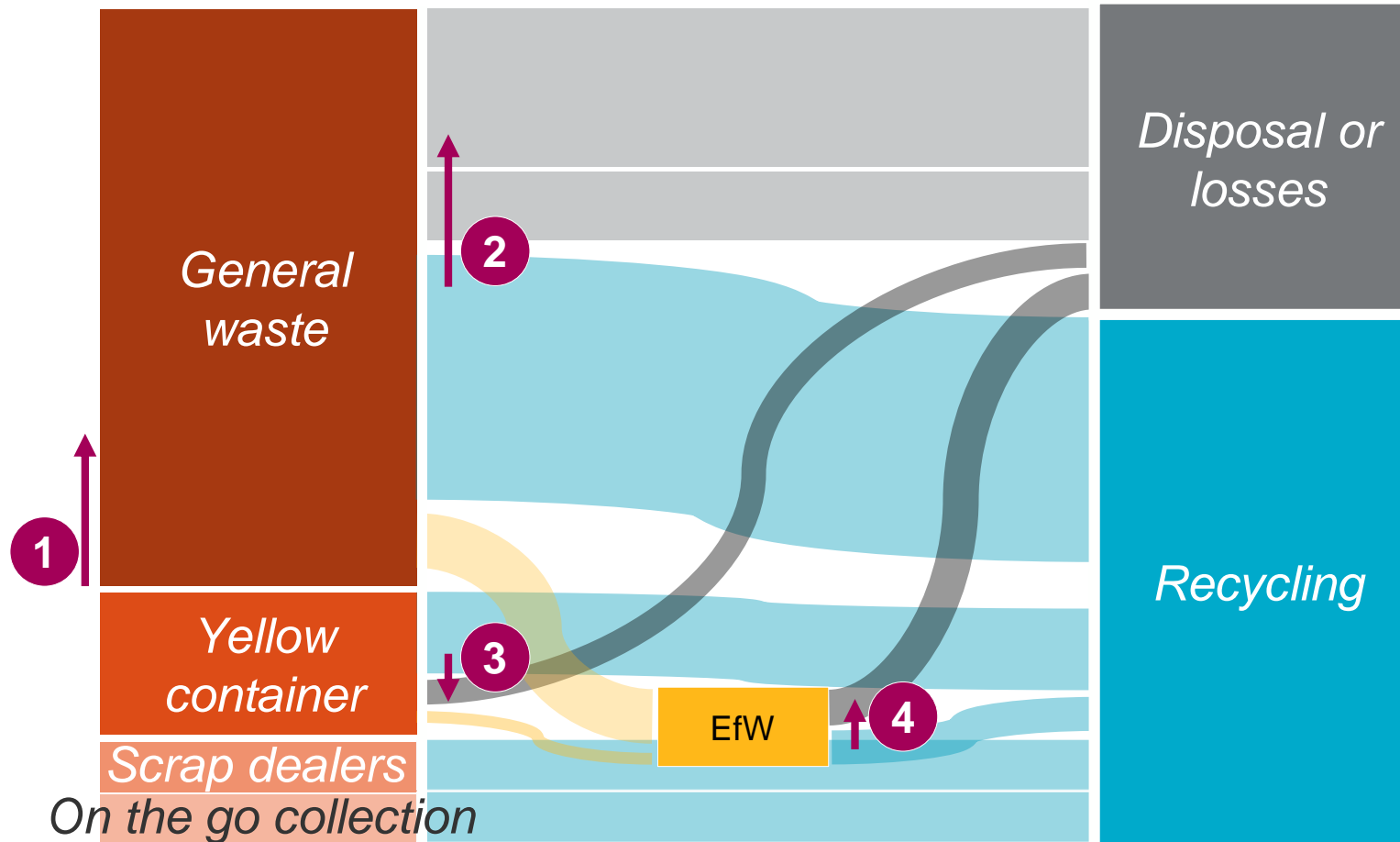
EXAMPLE: UK ALUMINIUM CAN RECYCLING TODAY



EXAMPLE: UK ALUMINIUM CAN RECYCLING ROADMAP



SPAIN RECYCLING ROADMAP: 4 KEY OPPORTUNITIES ON AN EPR SCENARIO

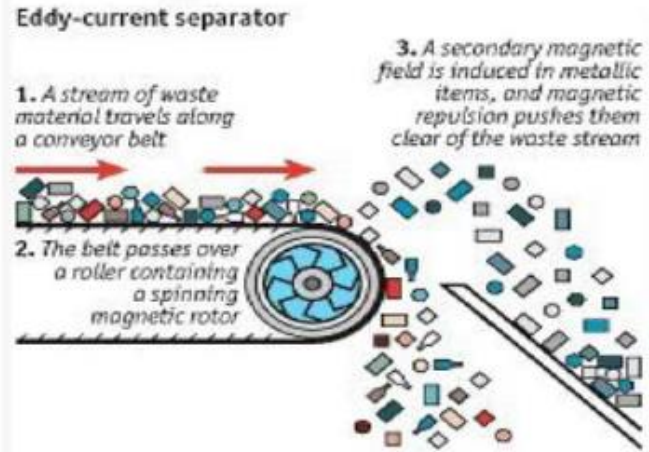


- 1 Increase Yellow collection through better consumer awareness & more infrastructure on-the-go
- 2 Recover aluminium from MSW through Eddy Currents
- 3 Improve efficiency of sorting plants (currently 87%)
- 4 As we move away from landfill, increase recovery of aluminium from bottom ashes

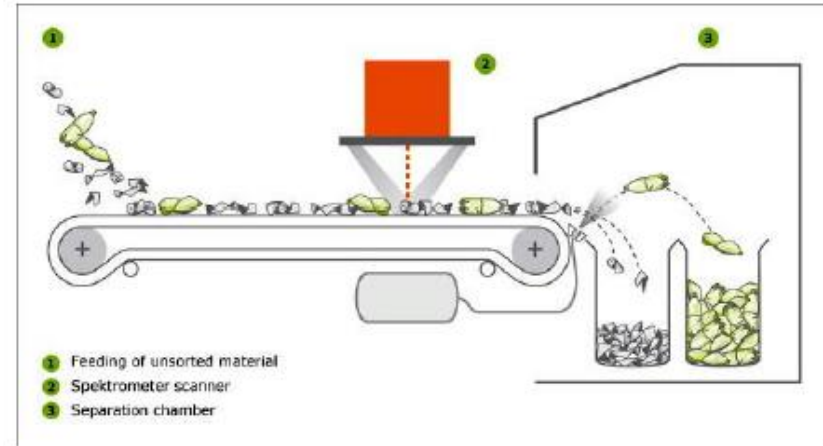
IMPROVING ALUMINIUM SORTING USUALLY HAS QUICK PAYBACKS



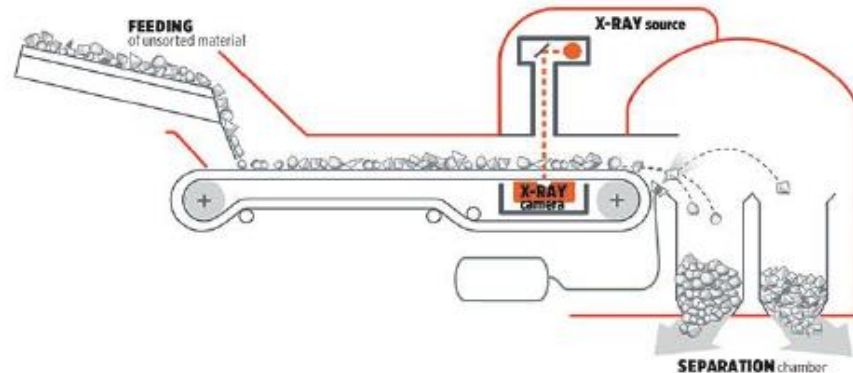
Eddy current separator



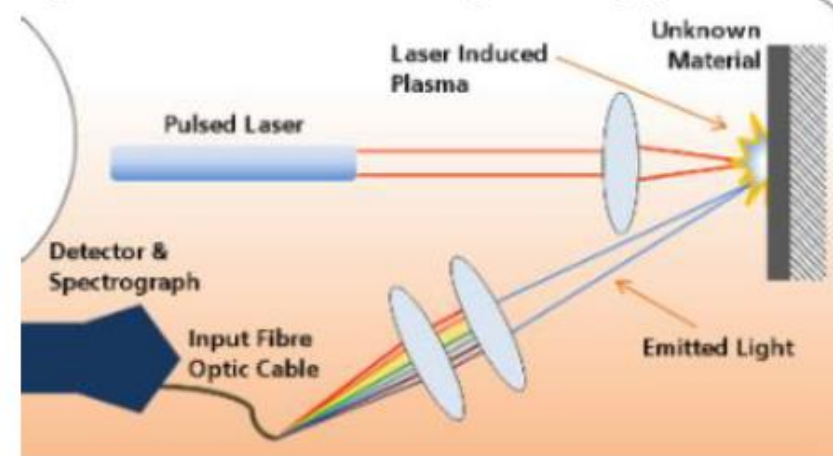
Infrared Sorting



X-Ray Sorting



LIBS (Laser Induced Breakdown Spectroscopy)



HOW TO ACHIEVE HIGH RECYCLING RATES



- » Increase **infrastructure for on-the-go** collection (eg. Beaches, events, public transport, etc)
- » **Sorting facilities** to improve efficiency yields (e.g. wider Eddy Currents, robots, etc)
- » **Smart EPRs** with incentives, track and trace, smart bins
- » **Deposit Return Systems** and Voluntary Take Back Machines
- » Achieve zero landfill ASAP and capturing aluminium from **incinerator bottom ash**

GOOD PRACTICE EDDY CURRENT FEEDING AND WIDTH



**GUIDES FOR
OPTIMUM SPREADING**

2M WIDE

CANS CAN STILL BE RECOVERED FROM INCINERATOR BOTTOM ASH



BOTTOM ASH TREATMENT: 90% EFFICIENCY, VERY LOW OXIDATION



WIDER AND RIGHT EDDY CURRENTS ARE NEEDED IN SORTING PLANTS



ALUMINIUM CANS: MOST VALUABLE MATERIAL FROM SORTING CENTRES



VOLUNTARY TAKE BACK MACHINES – informal to formal collection



INCENTIVES OR SMALL DEPOSIT

- Cash
- Retail discounts
- Bus or metro tickets
- Humanitarian causes
- Gamification
- Bonus games

Success Story: Hungary



- 200 machines
- 3 big brewers scheme

COMPACTED ALU CANS GREAT FOR REVERSE LOGISTICS



CAN COLLECTION AND MOBILE APPLICATION

- Interactive can crushers
- Mobile application
- Awarding, bonuses, discounts, bus tickets.....
- Humanitarian causes
- Gamification
- Capacity 2000 cans



THANK YOU



Ball Corporation

We work every day to make Ball the sustainable partner of choice – for our customers, employees, suppliers, investors, and the communities in which we operate.