



Overview of Europe learning and experiences on recycling

Peter Sandkuehler

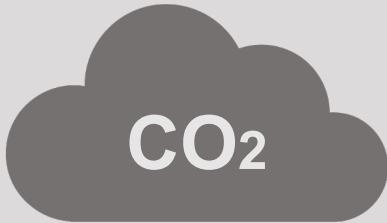
Director Sustainability EMEA Packaging & Specialty Plastics

Dow Europe GmbH

Safripol Sustainability Conference 2022
16 & 17 March 2022



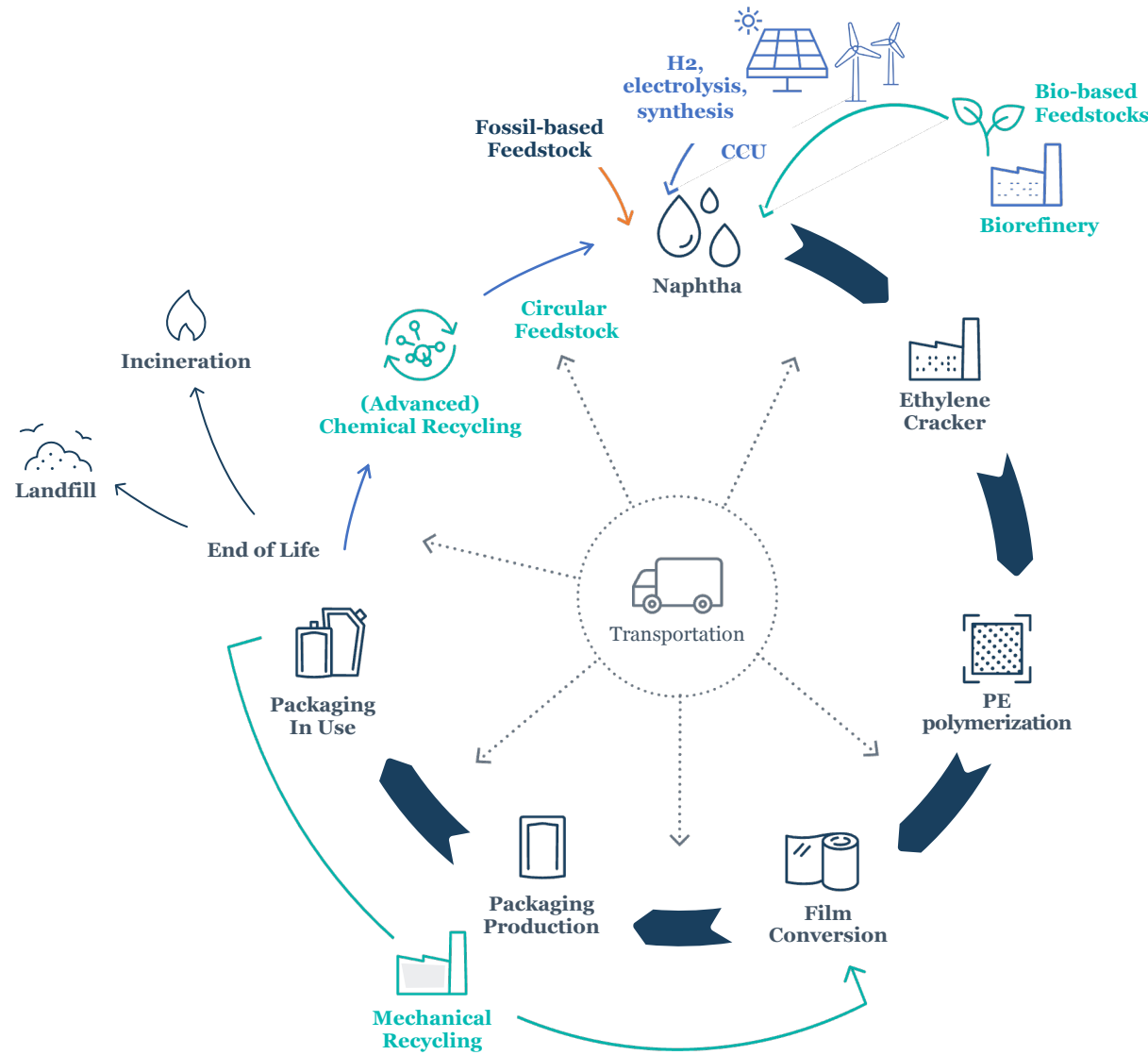
Climate change and circularity



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Packaging: linear to circular & lower carbon



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Note: graphic is an approximate representation

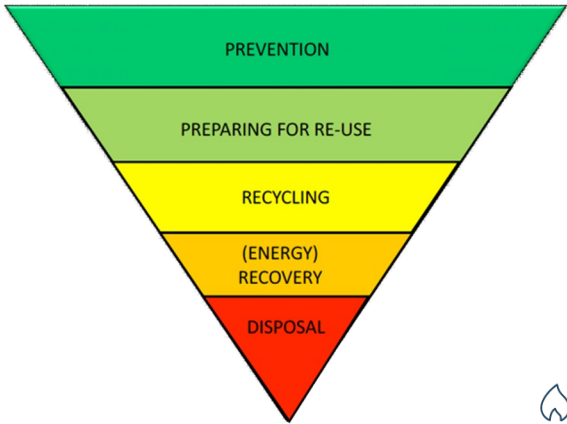




EU Policy Targets: towards a circular & carbon neutral future



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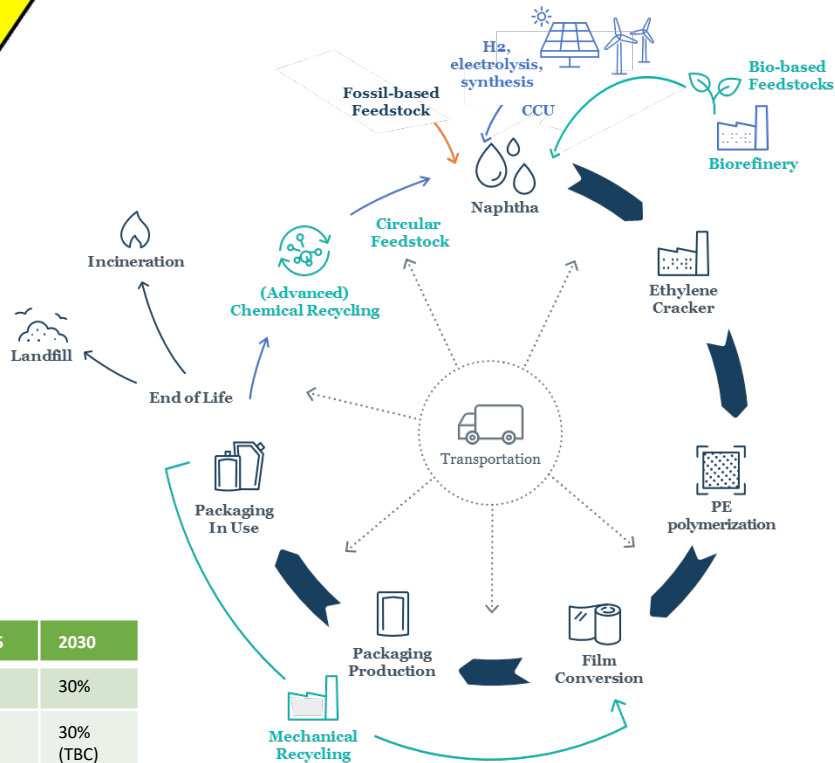


End of Life Targets

Recycling targets	2025	2030
Plastic packaging waste	50%	55%
Caps on municipal waste to landfill – discussion on bans		Max 10%

Packaging in Use – Recycled content / Reuse targets

Recycled content targets	2025	2030
PET plastics bottles	25%	30%
Plastic packaging (discussions to include bio-circular plastics on top of plastic waste)		30% (TBC)
Discussions on going to define different targets by end-applications (e.g.. 70% industrial packaging and 25% primary food packaging)		
Possible reuse targets for some end-applications		



Alternative feedstocks aspirations / Sustainable Carbon Cycles (reduction of fossil feedstocks use plastics/chemical industry)

Aspiration European comission	2025	2030
Alternative sustainable, non fossil Carbon Sources (bio, circular feedstocks for plastic plus CCU's)		20%
CCSU	100% to be reported by its fossil, biogenic or atmospheric origin	

Recyclability Targets – EU commitment 100% plastic packaging to be reusable or recyclable by 2030

Industry & Dow's commitments	2025	2030	2035	2040
Dow	100 KT/Y of recycled plastic sold in EU (CPA commitment)	1 MM MT to be collected, reused or recycled (globally)	100% products sold into packaging to be reusable or recyclable (globally)	
Plastics Europe		60% reuse and recycling plastics packaging		100% reuse, recycling and/or recovery
Policy	All MS need to have EPR's schemes for packaging (all materials!!).*			

* Revision of current packaging policy will include mandatory eco-modulation

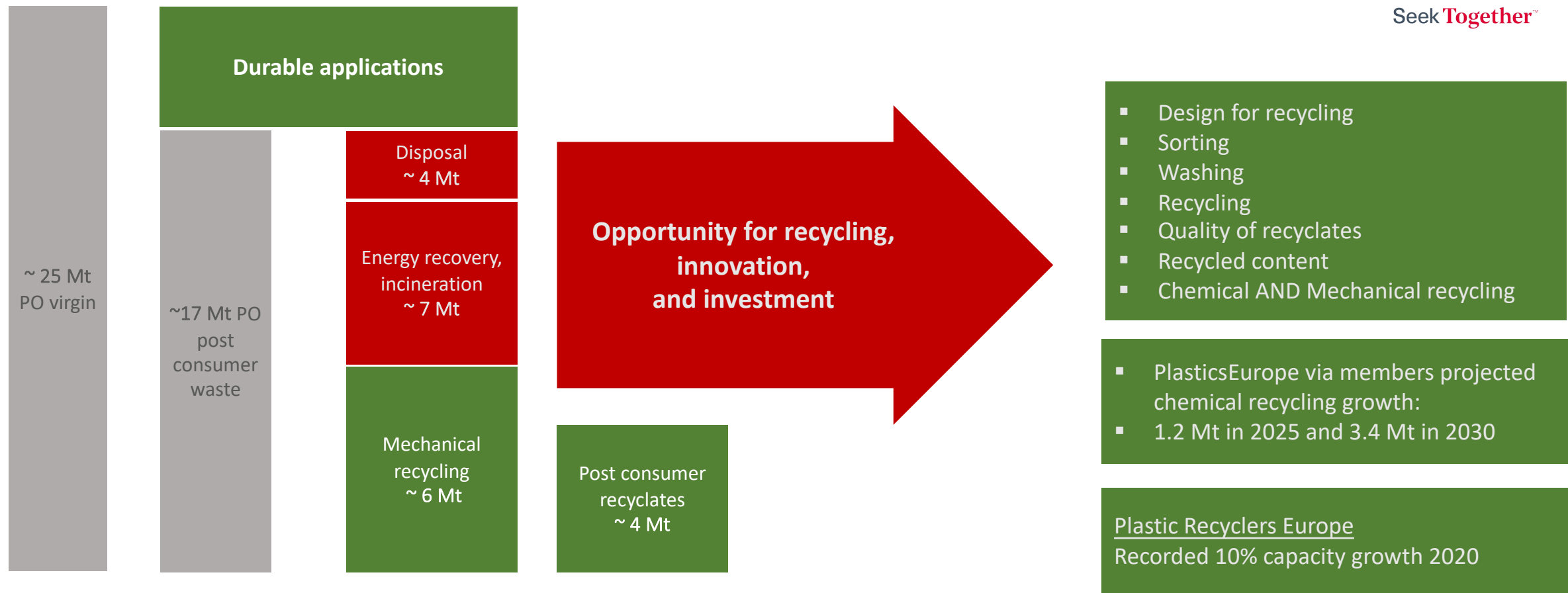




Polyolefin: market dynamics in Europe



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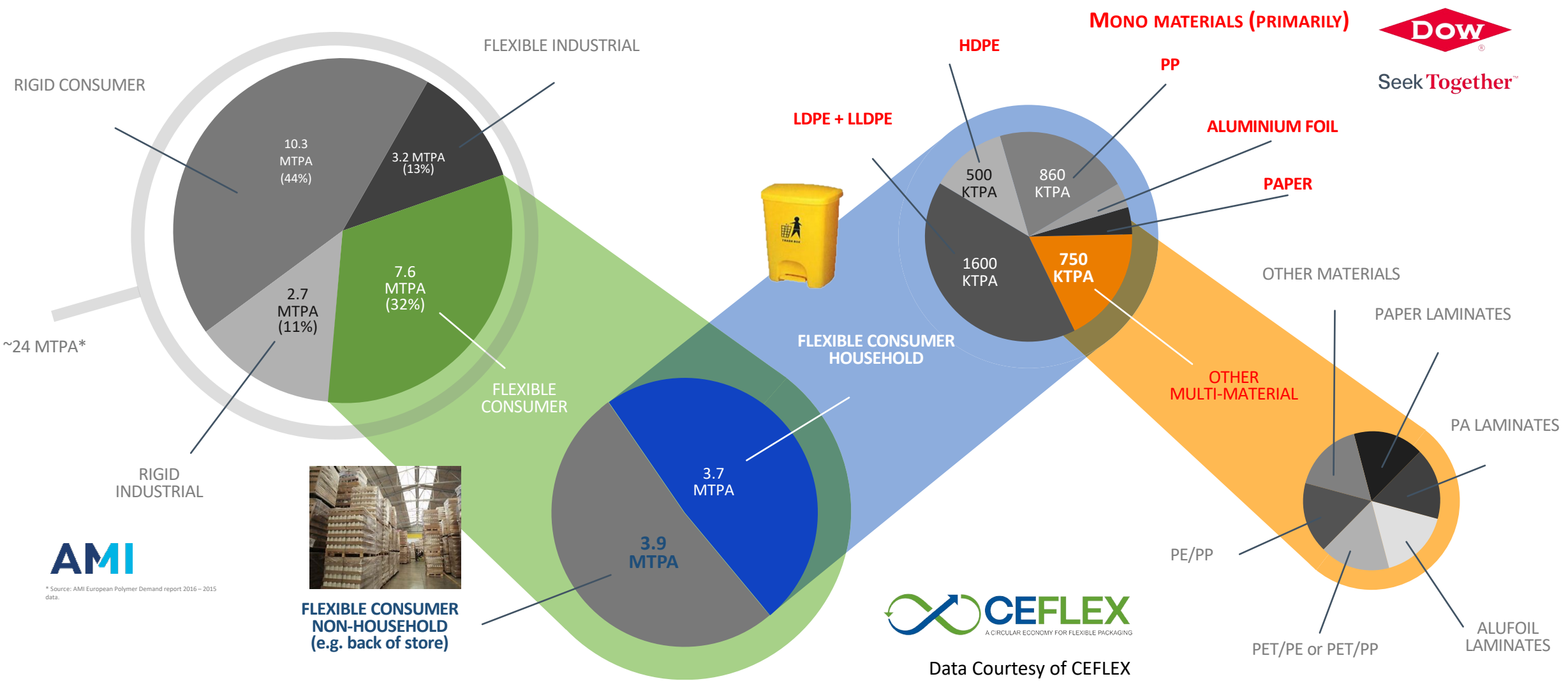


Sources:
Conversio Report for PCEP PO waste collection and recycling in EU28+2 countries 2019
AMI | Market Reports | Mechanical Plastics Recycling European Market 2022
Eunomia | Flexible films market in Europe: State of play – Production, collection and recycling data 2020





European use/waste landscape: recycling sources





What is recyclability?

- A package is recyclable if:
 - It is collected
 - It is sorted
 - It can be used in products for which a market exists
 - And if the above is happening at scale
- This can vary depending on region and readiness
- Dow is active in a plurality of organisations to help develop guidelines to make circularity happen



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RecyClass





Driving circularity with a lower footprint



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Plastic sustainability

D4R
commercial
reality

**Mechanical
recycling**
transforming the
value chain

**Advanced
recycling**
picking up the
pace

**Bio-based
diversifying
and
expanding**

Carbon
the truly global
driver

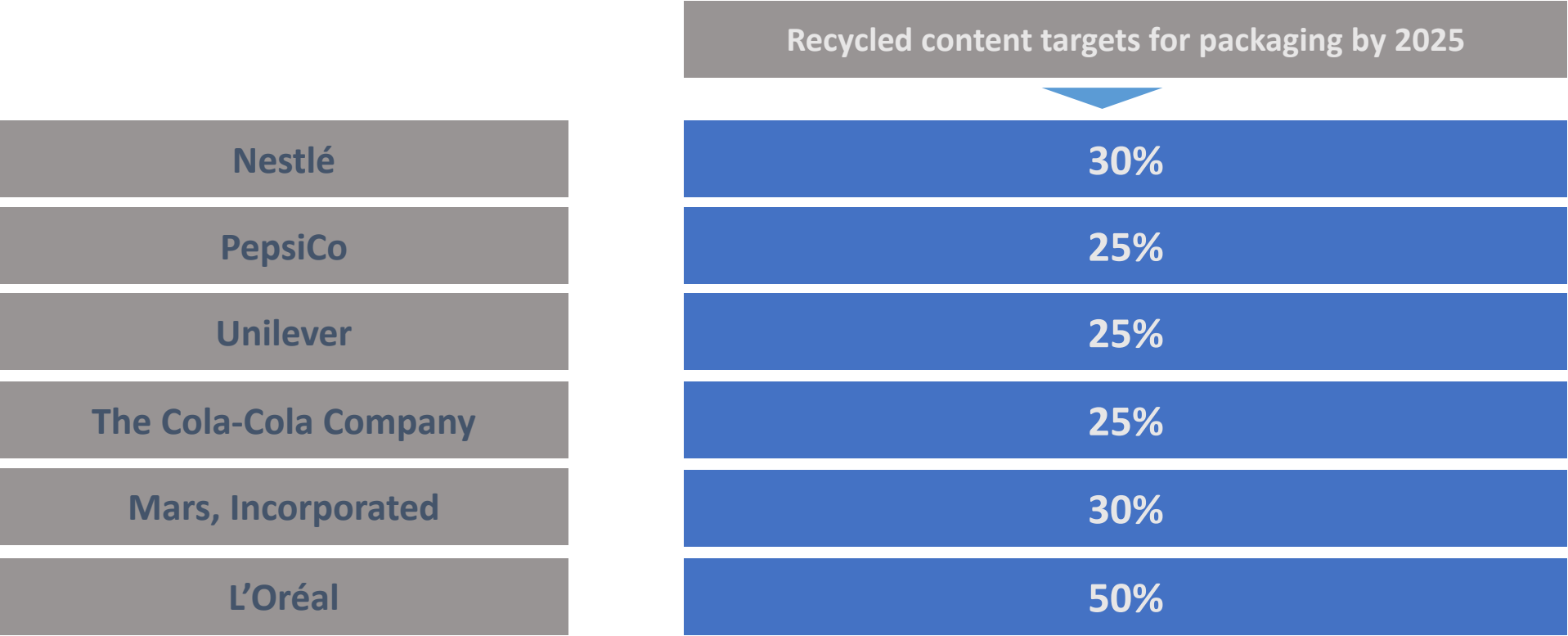
Extensive innovation portfolio



Brand owners: public commitments



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Source: The Global Commitment 2021 (ellenmacarthurfoundation.org)



Significant recycling already happening



European Market
~ 38 Mt virgin polymers (PE, PP, PVC, PET, PS)

Current Recycling

~ 8 Mt polymer recyclates being produced

45% PET recycled

58% recyclates used in rigid packaging,
building & construction and general
injection molding



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Rigid packaging

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About 3 Mt of polyolefin based rigid packaging being recycled in 2021



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Design for recycling: brand owner collaborations



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Reckitt

"Finish" dishwasher brand with recyclable packaging.

- 20 million packs-on-shelf worldwide since 2019.



Werner & Mertz

"Frosch" detergent brand spearheading all-polyethylene packaging.

- 24 million packs-on-shelf in Europe in 2020.



Liby

First in China's detergent pods market: full polyethylene-based packaging.

- Development time reduced by 3 months.

® TM Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

What's next?

Can a **pouch** be a **pouch** again?



30%



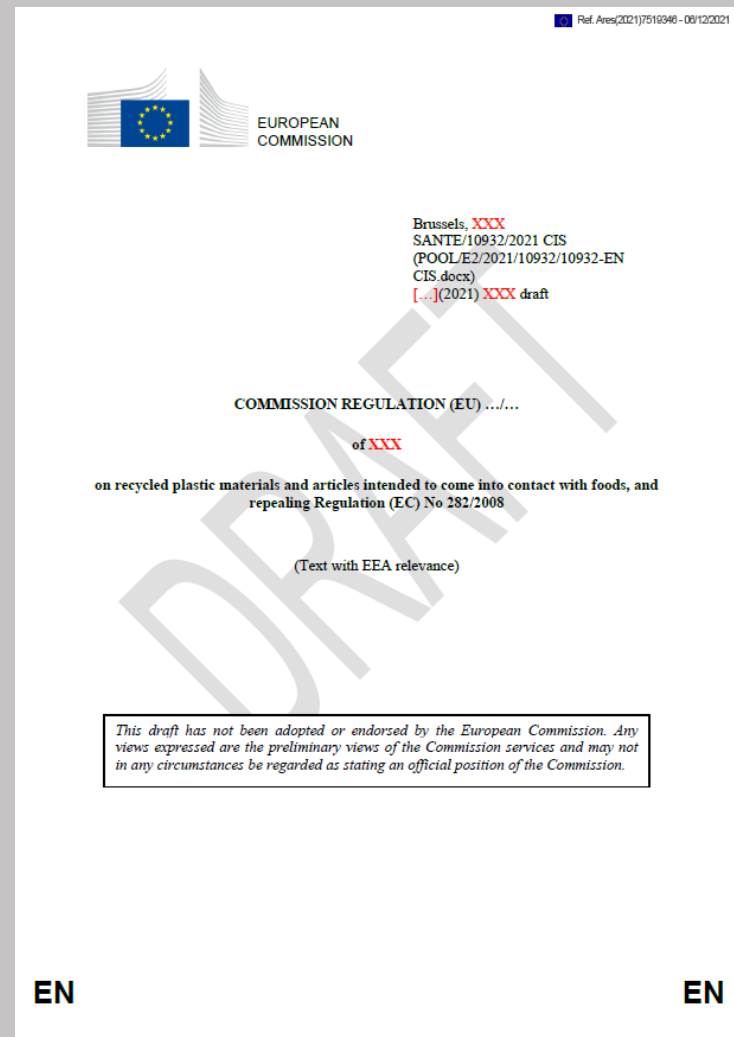




Recycled plastic and food contact



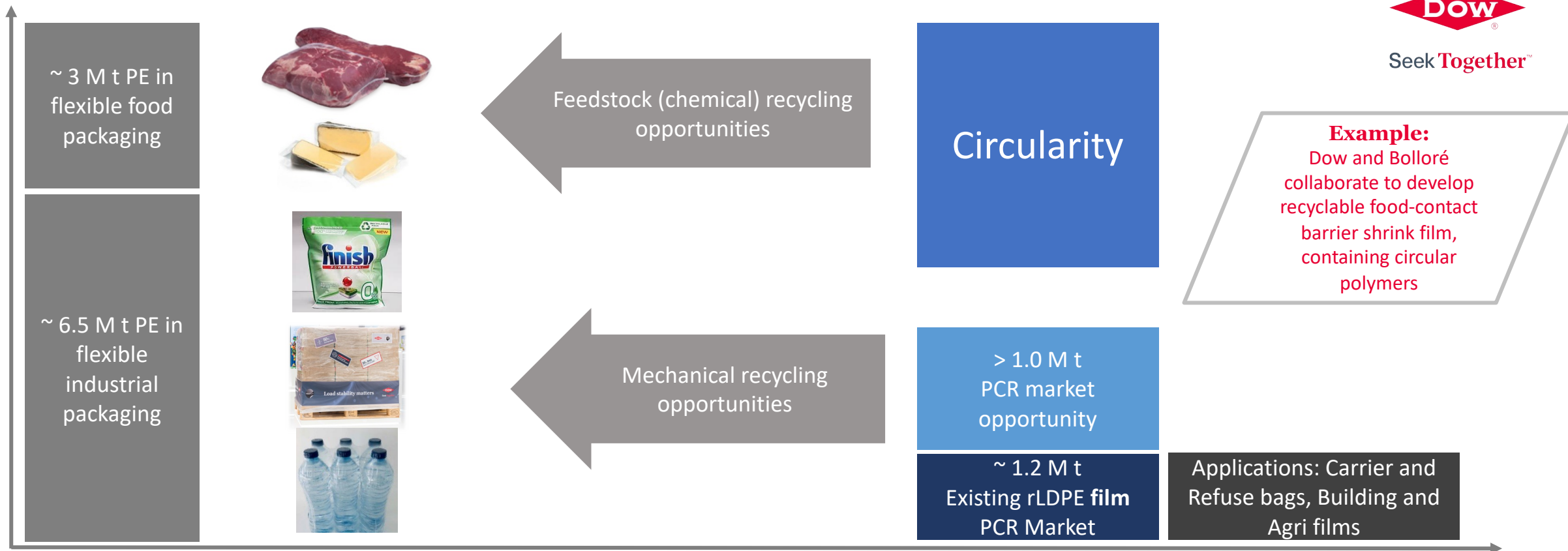
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European Commission - Food safety – recycled plastic in food packaging (updated rules)



Flexible packaging recycling



Sources:

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 AMI | Market Reports | Mechanical Plastics Recycling European Market 2022
 Eunomia | Flexible films market in Europe: State of play – Production, collection and recycling data 2020
 SMITHERS | The future of flexible packaging to 2026

eunomia

AMI

CONVERSIO
Market & Strategy

General Business

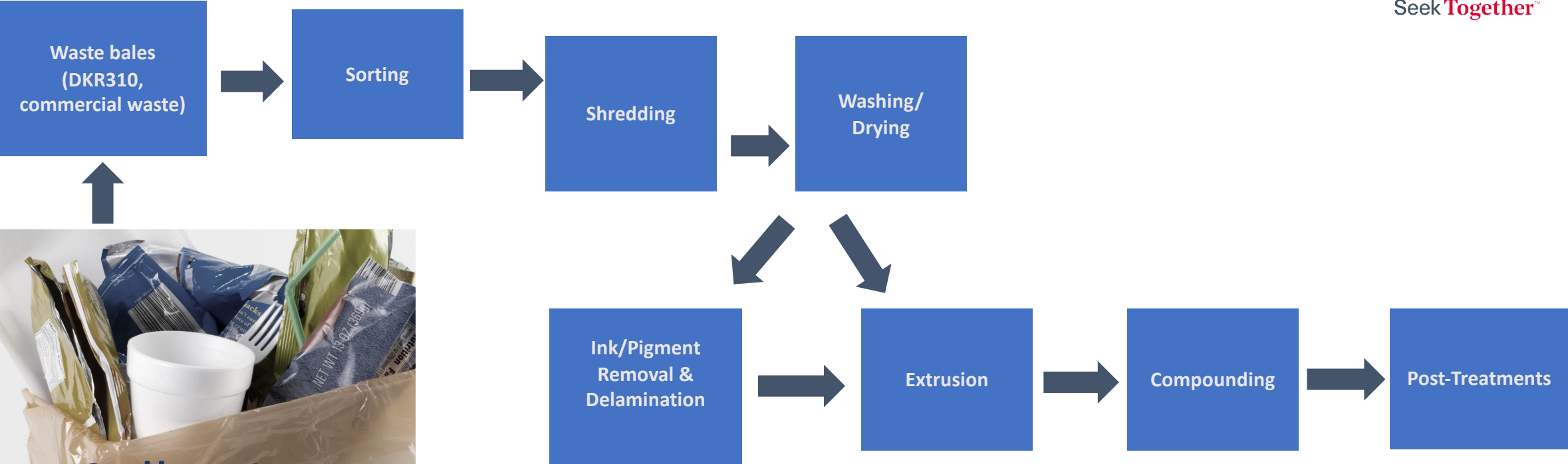
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shaping your world, responsibly



Recycling infrastructure of plastic packaging



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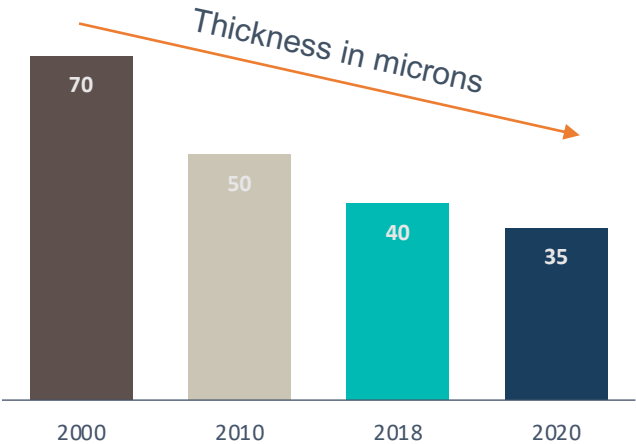
Shrinking Plastic Waste

50%
reduction of flexible
packaging consumption

50% of PCR
While downgauging and
maintaining package integrity

Improved
Optics and Stiffness/
Toughness balance

34% of CO₂ savings
through replacement of fossil
feedstock by REVOLoop™



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Enabling circularity through partnerships



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- Dow has partnered with Mura Technology to support the rapid scaling of an innovative new **advanced recycling solution** to close the loop on plastic waste
- Mura's specialist recycling technology converts plastic waste (including hard to recycle plastics) back into its **high-quality raw materials**.
Dow will use these materials to develop new, virgin-grade plastic to be re-circulated into global supply chains
- The world's first plant using this recycling solution is currently in development in Teesside. The plant is expected to be operational by end 2022 and able to recycle 20,000 tonnes of plastic waste - with an expected eventual capacity of 80,000 tonnes per year.





Africa:

Making an impact through collaboration



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General Business

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Mister Green Africa

Dow makes equity investment in Mr. Green Africa Trading Ltd, Kenya



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MSW and (flexible) plastic waste is a large and growing problem in Africa

Dow has multiple activities & ambitions to address the problem in Africa

MGA is gaining traction after 6 years in the waste market

MGA is building a circular economy infrastructure including the informal sector, technology (app and infrastructure), and sales of PCR



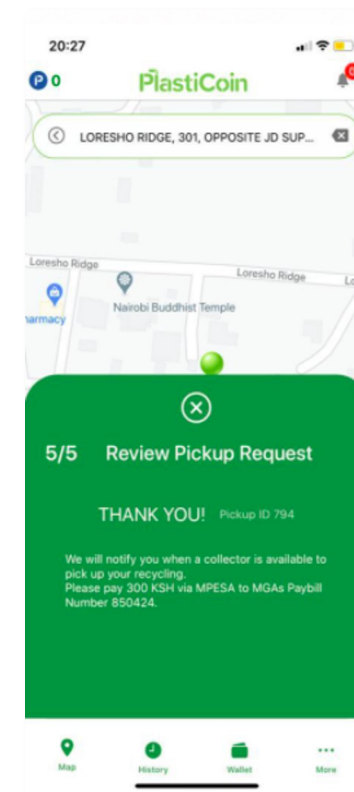
Collection: Mister Green Africa



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A Game Changer

- Pilot launched in October, 2020 with Mr. Green Africa in Nairobi, Kenya
 - 50+ Consumers have downloaded & registered, 3 Collectors utilizing app
 - 70+ collections over 5-week period
 - Surpassed pilot target for flexibles collected with over 90 kgs and over 150 kgs of plastic in total
- Scale up to 250,000 households





The possibilities in Africa



Solid waste management dynamics in each market is different



Socio-economic factors >>> Sustainability, recycling and other environmental issues



Flexible packaging is one of the most neglected waste streams



Project Reflex Africa directly targets incentivized collection of flexible packaging into recycling and end-use



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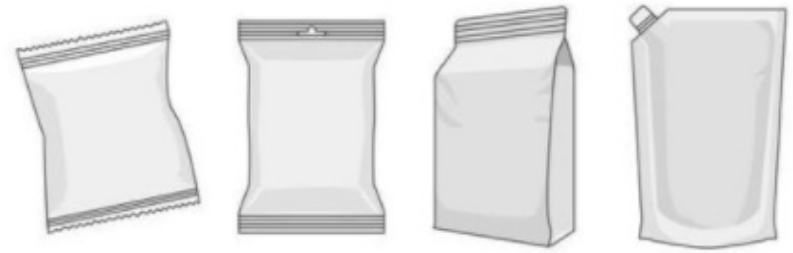
Project ReflexNG



PE Based Water Sachet



PE PCR



PE based Non-Food Primary Packaging



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Thank you!

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Any questions?

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**Design.
Recycle.
Reuse.**