reloop

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EXPLORING CIRCULAR SOLUTIONS FOR BEVERAGE CONTAINERS

#Deep-Dive European DRS #Circular Plastic Now

reloop

DRS AS AN EPR FOR BEVERAGE CONTAINERS

– from litter prevention to packaging circularity

Thanks to *door-to-door* recycling and *right of first refusal*, circularity of plastic bottles has been secured in Sweden since 2009. Deposit bearing plastic containers are directly transported from the DRS operator's logistics centre to the recycling facility located next-door. Plastic flakes are sold to local beverage producers who have pre-emption rights to the rPET. Photos: Anna Larsson

ANNA LARSSON

Director, Circular Economy Development

Reloop Platform

BEVERAGE particular problem CONTAINERS

Quantity

Average consumption in Europe amounts to hundreds of beverages in plastic, metal or glass containers per capita and year.

Volume

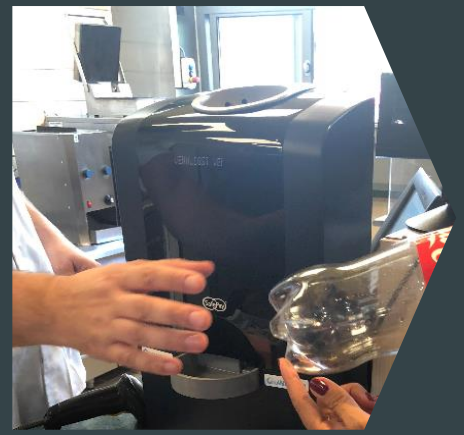
Used beverage containers take up to 40% of the space in waste bins and substantial volume in litter bins.

Littering risk

Beverage and food containers and make up 80% of litter.

DRS

Has been used as a method of the collection of beverage containers for decades.
Producers have used the deposit, id est a monetary incentive, in order to guarantee returns of refillable containers.



Collection method based on deposit has been adopted for single use beverage containers.
In Europe, for the first time in Sweden in 1984.

DRS – ROLE MODEL FOR EPR

1.2.2. Färgad plastflaska

Pant, Förpackningsavgift och Sorteringsavgift
per färgad PET-flaska/Plastflaska med lägre alkoholhalt än 3,5 %

Pant 1 kr ≤ 1 liter	
Pant	0,89 kr
Förpackningsavgift	0,15 kr
Sorteringsavgift	0,05 kr
Summa	**1,09 kr exkl. moms**
Pant 2 kr > 1 liter	
Pant	1,79 kr
Förpackningsavgift	0,35 kr
Sorteringsavgift	0,05 kr
Summa	**2,19 kr exkl. moms**

Pant, Förpackningsavgift och Sorteringsavgift
per färgad PET-flaska/plastflaska med högre alkoholhalt än 3,5 %

Pant 1 kr ≤ 1 liter	
Pant	0,80 kr
Förpackningsavgift	0,15 kr
Sorteringsavgift	0,05 kr
Summa	**1,00 kr exkl. moms**
Pant 2 kr > 1 liter	
Pant	1,60 kr
Förpackningsavgift	0,35 kr
Sorteringsavgift	0,05 kr
Summa	**2,00 kr exkl. moms**

EPR is essentially defined as financial responsibility of manufacturers and fillers for the whole life cycle of products and packaging they place on market.

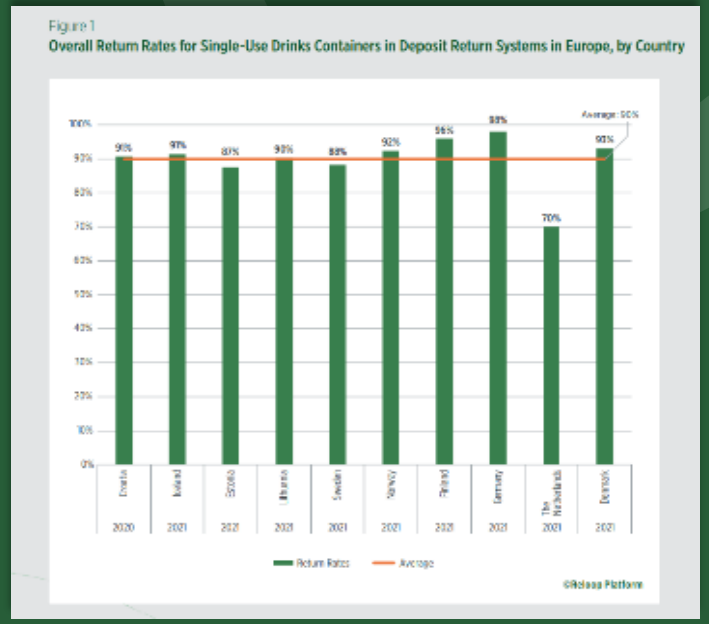
- DRS is fully financed by fillers
- Principle of *net cost coverage* is adopted
- Applied eco-modulation* of fees has resulted with eco-design

* The fees for coloured plastic bottles are higher due to their decreased circularity.
Example: Returpack
bilaga-3---pant-och-avgifter-2023.pdf (pantamera.nu)

DRS

Circular economy best practice

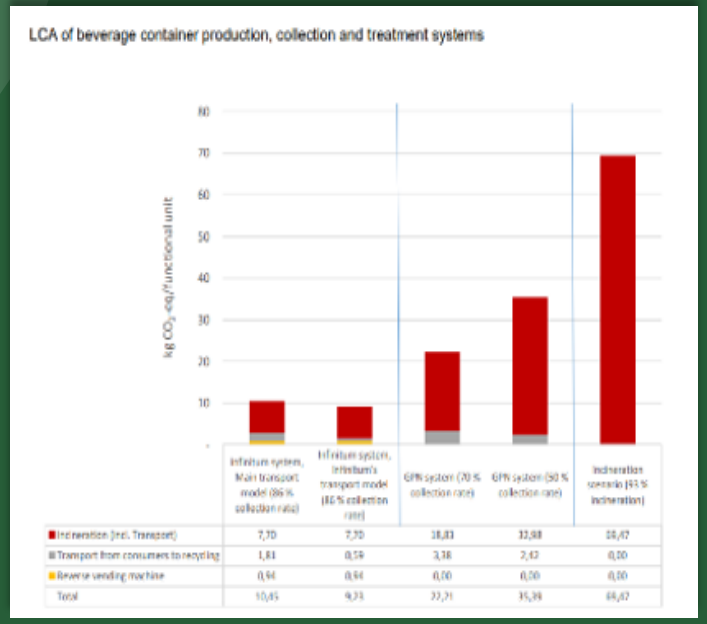
Maximized collection



Deposit systems result with 90% collection rates

Source:
RELOOP_Factsheet_Performance_12I2022.pdf (reloopplatform.org)

Reduced carbon footprint



Collection of beverage containers through deposit system results with ca 30% lower carbon footprint than traditional curbside system.

Source: LCA for existing deposit system in Norway

Bottle-to-bottle ● Circularity at a local level

High volume of high-quality material is a precondition for circularity of materials. Beverage plastic bottles sold in Sweden consist of at least 50% rPET.

resources
remain
resources

www.reloopplatform.org


INFINITUM

INFINITUM AS

Private owned value chain company owned 50/50 producer and retail
Operation started 3. of may 1999.
DRS in Norway since 1902.

1.7 billion cans and bottles

- 23 000 tonnes of PET
- +80% of recycled content in all PET bottles possible in Norway today!
- 2023 - 50 % rPET
- 2024 - 60 % rPET (with Infinitum material)

- 13 000 tonnes of aluminum

INFINITUM AS

Infinitum operates a material pool system for aluminium and PET.
When the beverage industri use all of our material its a reusable system with the lowest environmental impact!

DEPOSIT- AND COLLECTION

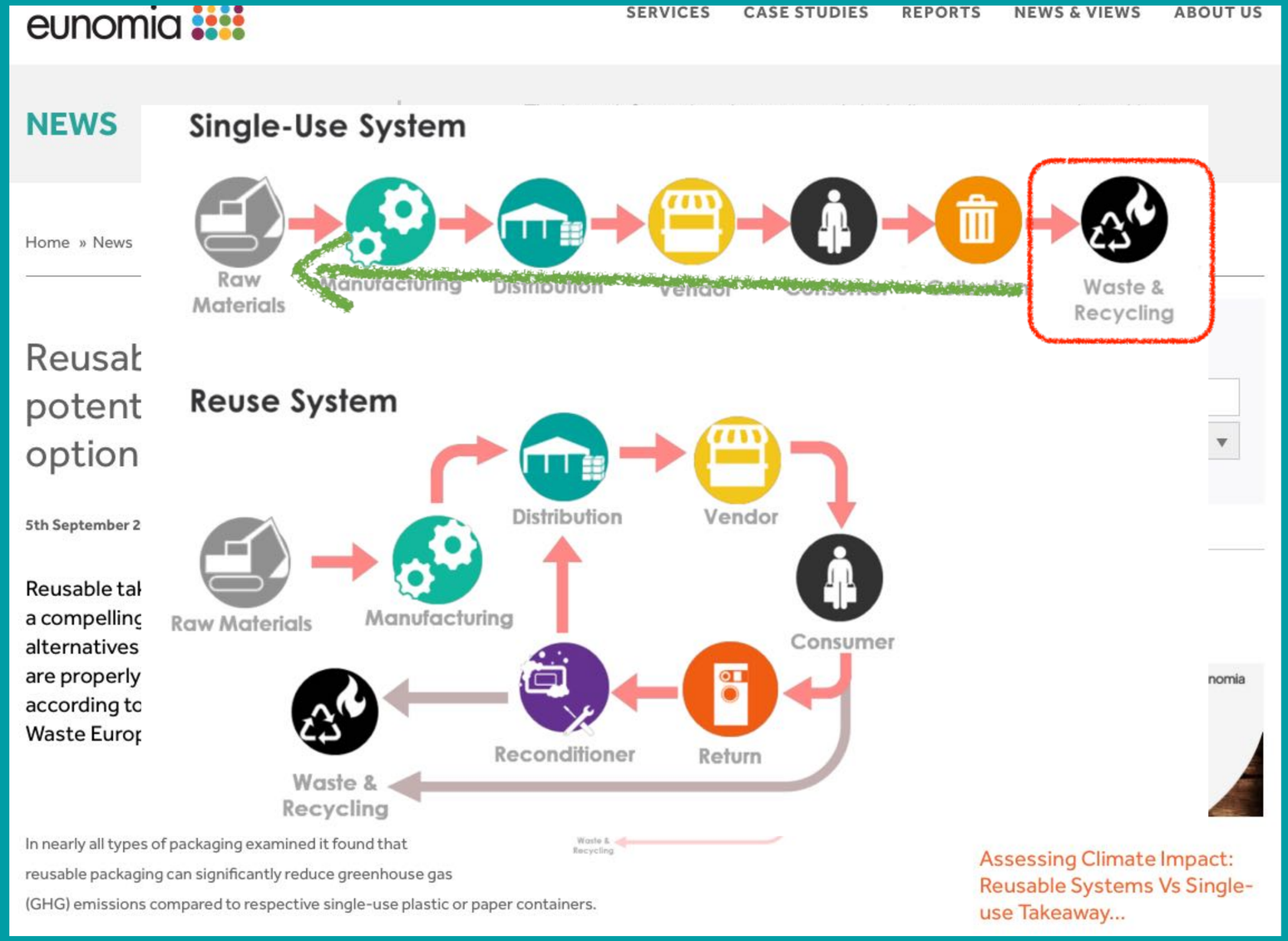
Supply chain	No. of cans	Tonnes of cans	% of added	No. of PET	Tonnes of PET	% added to the market	
Total sales	915,125,716	12,587	-	630,615,766	23,560	0%	
Value chain	-55,658,642	-717	-	10,959,081	320	0%	
Added (sales + value chain)	859,467,074	11,871	100%	641,574,847	23,880	100%	Numerator
Total returned through reverse vending machines	**800,887,244**	**11,072**	**93.3%**	**585,052,366**	**21,970**	**92%**	Deposit rate
From central sorting plant	4,750,162	65	0.5%	1,481,472	52	0.2%	
From slag sorting	33,909,221	464	3.9%	-	-	0.0%	
From materials sorted at source	6,718,400	91	0.8%	1,802,752	65	0.3%	
Waste-to-energy	8,169,227	112	0.9%	38,206,629	1,246	5.2%	
Total recycled from waste	**53,547,010**	**731**	**6.2%**	**41,490,853**	**1,363**	**5.7%**	
Total recycled	**854,434,254**	**11,804**	**99.4%**	**626,543,219**	**23,332**	**97.7%**	Tot collection rate
Incineration waste in bottom ash	12,421,498	170	1.4%	-	-	-	
Energy recycling incineration	1,616,984	22	0.2%	6,136,650	196	0.8%	
Unknown allocations	-9,005,661	-125	-1.1%	8,894,978	352	1.5%	
Total not returned	**58,579,830**	**798**	**6.7%**	**56,522,481**	**1,919**	**8.0%**	
Total	**859,467,074**	**11,871**	**100%**	**641,574,847**	**23,889**	**100%**	
Foreign items	19,506,476			2,936,471			

EPR COST PRODUCER/IMPORTER

	Aluminium	PET	HDPE
Basis EPR	-EUR 0,006	EUR 0,014	EUR 0,014
Light blue		EUR 0,008	EUR 0,008
Colored or sleeve > 75 %		EUR 0,015	EUR 0,015
Sleeve eller label	EUR 0,003		
rPET > 80 %		EUR 0,005	
Crystallinity > limits		EUR 0,010	

- Unredeemed deposit and material income retained in Infinitum
- No VAT on deposit nor on unredeemed deposit

REUSE OF MATERIAL

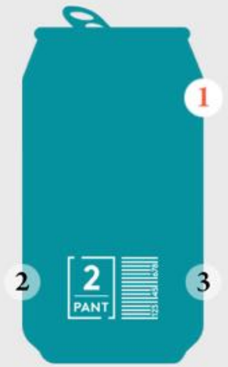


DESIGN FOR RECYCLING SINCE 1999

Hva gjelder for pantebokser?

Alle bokser må testes. De blir sjekket for materialtype etter våre krav. Strekkodens lesbarhet. Dette for å sikre at de kan pantes og kan gå til høyverdig resirkulering.

Tekniske spesifikasjoner



1. Boks

JA

Aluminium
Stål

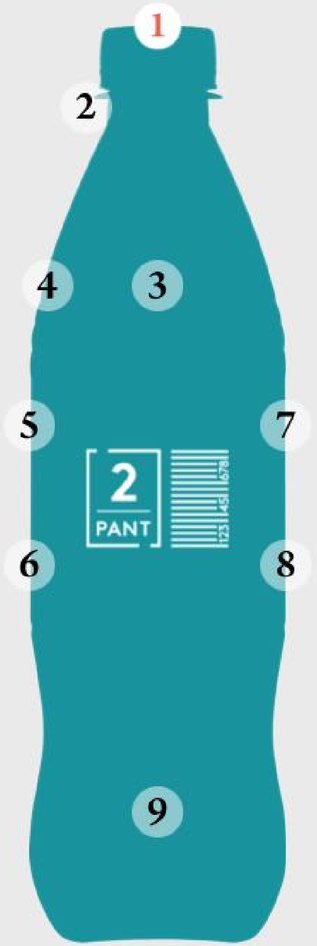
NEI

Plast

Hva gjelder for panteflasker?

Alle flasker må gjennom test. De blir her sjekket for materialtype, tykkelse, farge, form, etikett, samt strekkoden og pantemerke. Alt dette for å sikre at flaskene kan pantes og at materialet kan brukes til høyverdig resirkulering.

Tekniske spesifikasjoner



1. Kork

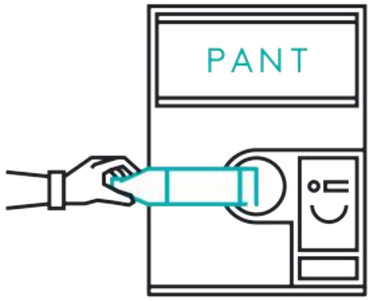
JA

PE
PP
PET (kun på farget PET flasker)
Metal crown

NEI

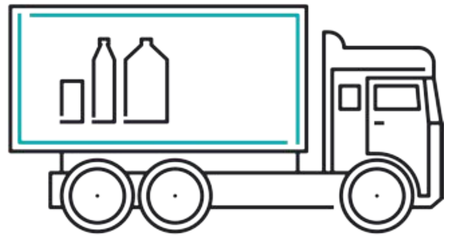
Metal skru kork

Happiness



Pant

Preparation

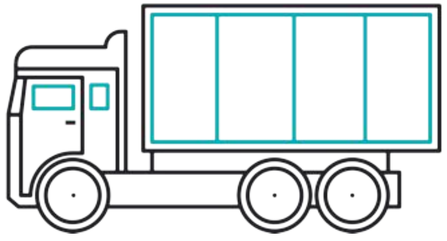


Pick up

100% PRODUCER RESPONSIBILITY

Transport

Sorting and bailing



Transport

High grade recycling

OLD FASION REUSABLE

OLD FASION REUSABLE

EFFICIENT LOGISTICS

94% collected through 3 700 RVM in grocery stores

2,0 mill bags, average 1,8 bags/shop/day

6 % from 11 300 pick up points without RVM

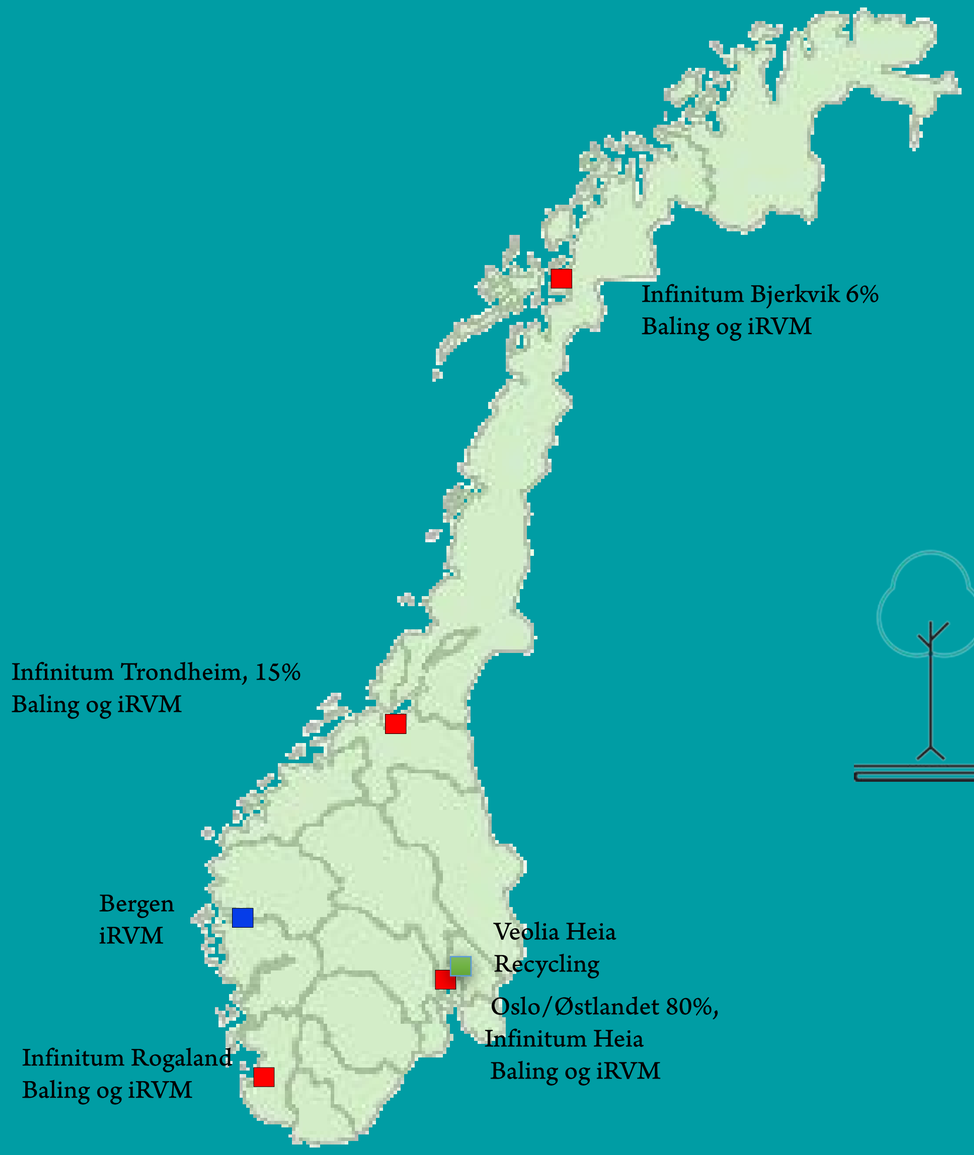
540 000 bags

<1 % Company's with internet sales of grocery og beverage

According to the regulations - all outlets selling beverage with deposit is obliged to accept deposit bottles/cans and disburse deposit as cash!

EFFICIENT LOGISTICS

PRODUCTION FACILITIES



EFFICIENT LOGISTIC
LOGISTIC, VALUABLE MATERIAL

Draft Master

PET - Festival cups

Vin and spirit

Keg

COST EFFICIENT COLLECTION
LOWEST CARBON FOOTPRINT
HIGHEST REUSE CAPABILITY

100% collection and high-grade recycling

New efficient RVM, bulk feed

< 48 hours from deposit to delivery for recycling

Infinitum

Klokken
09:00

Et containerlass med tomflasker tømmes på få minutter ned i luken hos Infinitum.

Klokken
09:02

En maskin flerrer opp posene og slipper flasker og bokser løs på båndet. Posene sendes videre i egen linje for gjenvinning.

Klokken
09:04

Løse korker og etiketter blir sortert ut fra strømmen av flasker og bokser.

Klokken
09:05

Plastflasker og bokser blir sendt i buffersilo.

Klokken
09:08

Bokser sorteres ut med magnetfelt. Alle bokser blir sendt til egen presse som komprimerer til kuber med om lag 20 000 bokser i hver. Disse lastes rett på bil til England.

Klokken
09:09

Plastflasker og bokser sendes ut på sorteringslinje, fire meter i sekundet, til optisk sortering. Plastflaskene blir sortert etter farge. Gjennomsiktige flasker sendes direkte i presse. Fargede flasker sendes tilbake til krokkasse for ny sortering.

Klokken
09:10

Plastflasker blir presset i store kuber, lastet på traller og kjørt over gårdsplassen til Veolia. Hver enkelt kube inneholder 10 000 sammenklemte flasker, som til sammen veier 300 kilo.

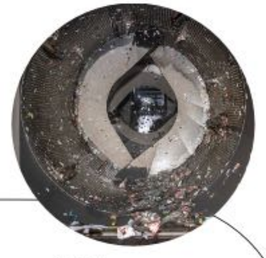
16 hours recycling prosess

Veolia

100 meter fra Infinitums anlegg ligger Veolias resirkuleringsfabrikk, et 3 500 kvadratmeter stort lokale der plastflasker blir til pellets. Hit kjører en liten lastebil over gårdsplassen fra Infinitum annenhver time, døgnet rundt, lastet med om lag 26 kuber av de sammenklemte flaskene. Til sammen 36 tonn med pellets blir produsert i døgnet hos Veolia. Biler fra Infinitum henter lasten og frakter plasten til et lager noen hundre meter unna Veolias anlegg. Herfra går plasten videre til Sverige og Litauen hvor den blir gjort om til flaskeemner.

Klokken
09:30

Tomflasker i kuber blir lastet av trucken og lagt på båndet. Når kuben treffer det første båndet hos Veolia, havner flaskene i en trommel og den tettpakkede massen løser seg opp.



Klokken
09:35

Den første av til sammen tre metalldetektorer fjerner aluminium.

Klokken
09:40

Flaskene kvernes til mindre biter, med kork og det hele. Deretter suges etikettene opp i et eget zig zag-tårn, for de skal ikke være med videre.

Klokken
09:45

Biter av flasker og korker vaskes i en blanding av lut og vann på 70 grader. Denne prosessen krever også en ny skyllerunde i en egen maskin.

Klokken
10:00

Flaskebiter og korkebiter skal skilles fra hverandre. Det foregår i et slags basseng. Pet fra flasker synker ned og korkmateriale flyter opp.

Klokken
10:30

Ny runde med etikettfjerner, metalldetektor og – sil. Flaskebitene blir nå sortert; de som er i passe store biter og de som er for små eller for store.

Klokken
10:35

Ny maskin sorterer ut det som er av fargede biter. Det er bare klar og lyseblå pet som brukes i produksjon av nye flasker.

Klokken
10:45

Bitene varmes og tørkes.

Klokken
14:30

Bitene skal nå smeltes om og varmes opp til 280 grader. En «kjøttkvern» kutter smeltebitene i små pellets. Prosessen foregår i vann, for å hindre at bitene smelter sammen igjen.

Klokken
17:00

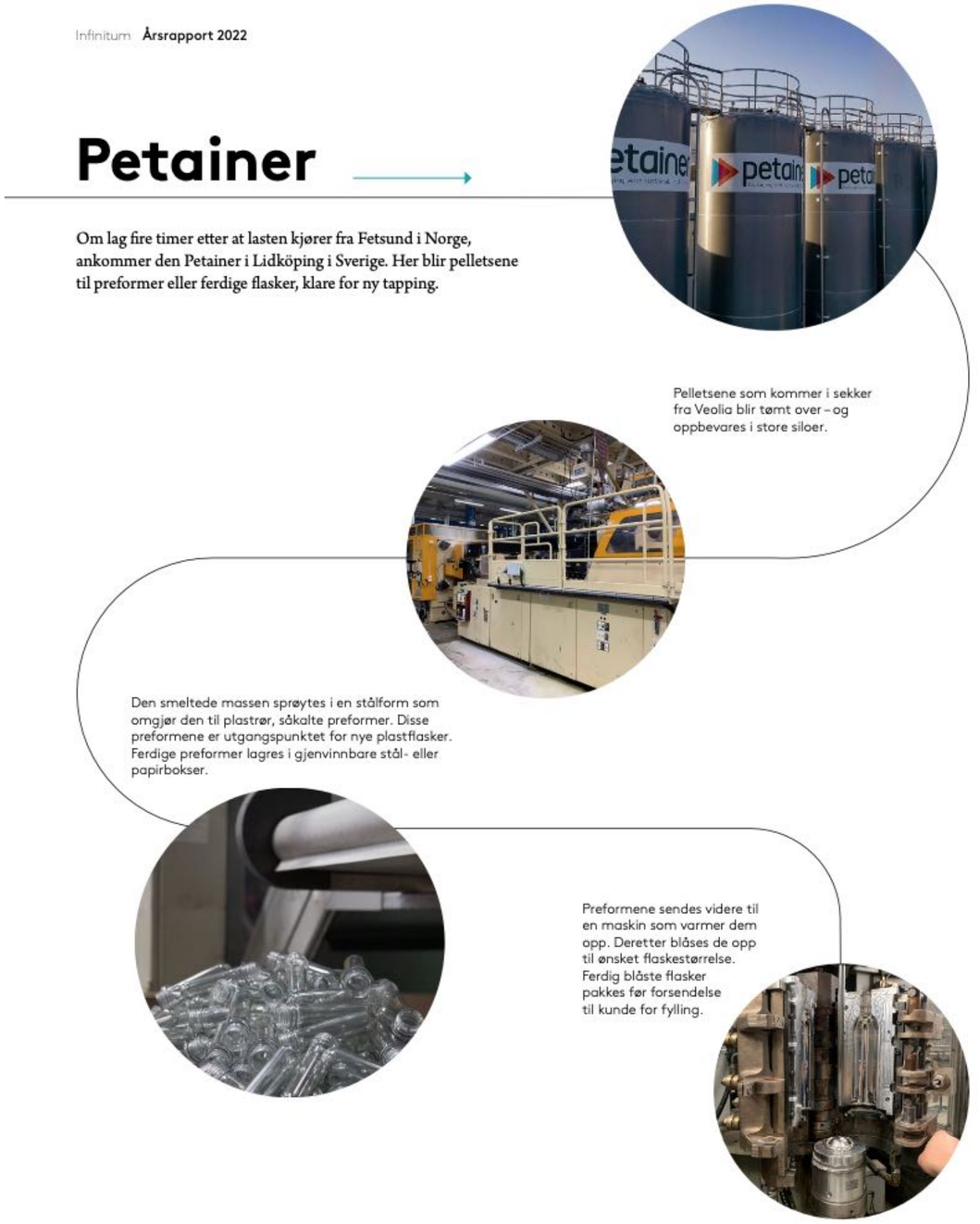
I minimum seks timer og 190 grader blir det som nå er blitt til pellets kjørt gjennom en ny runde med tørking og varmebehandling. Denne runden skal sikre at materialet blir næringsmiddelggodkjent.

Klokken
01:30

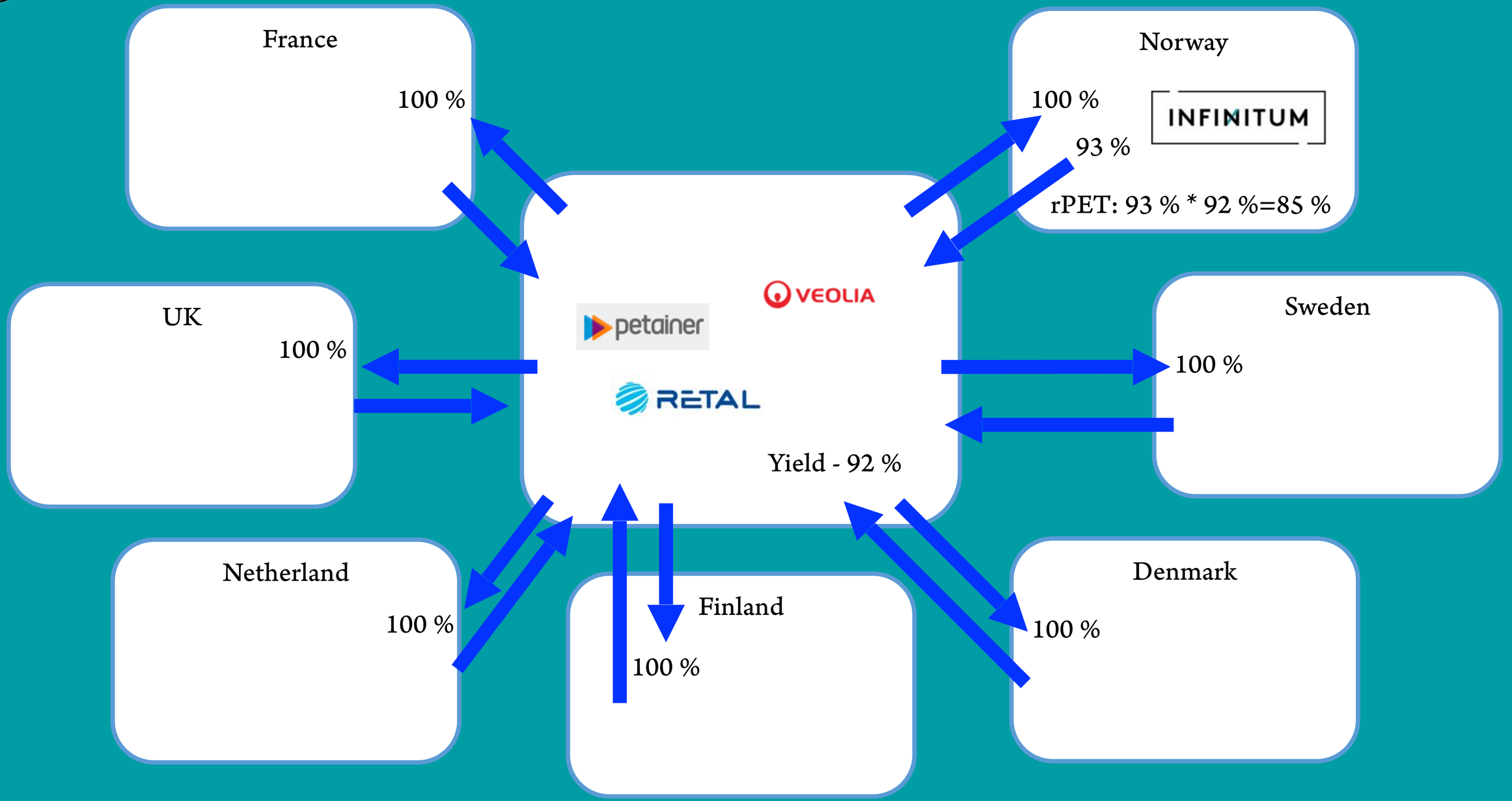
De ferdige pelletsene er sortert i store poser, merket og klare for utkjøring til Sverige og Tyskland.

Preform production

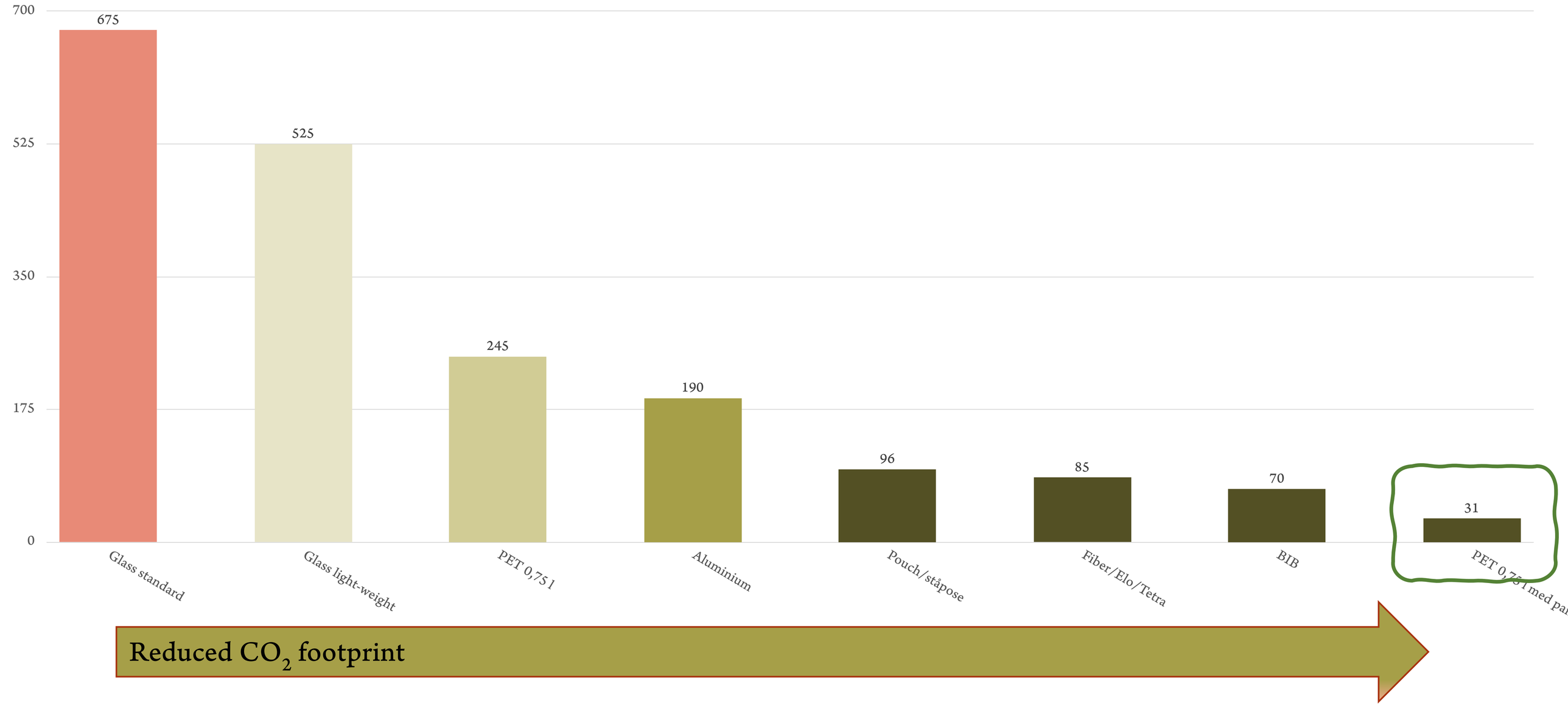
< 80 hours from deposit to back to marked for a new round!



MASS BALANCE , EU PR COUNTRY



CO_2 in grams per liter beverage



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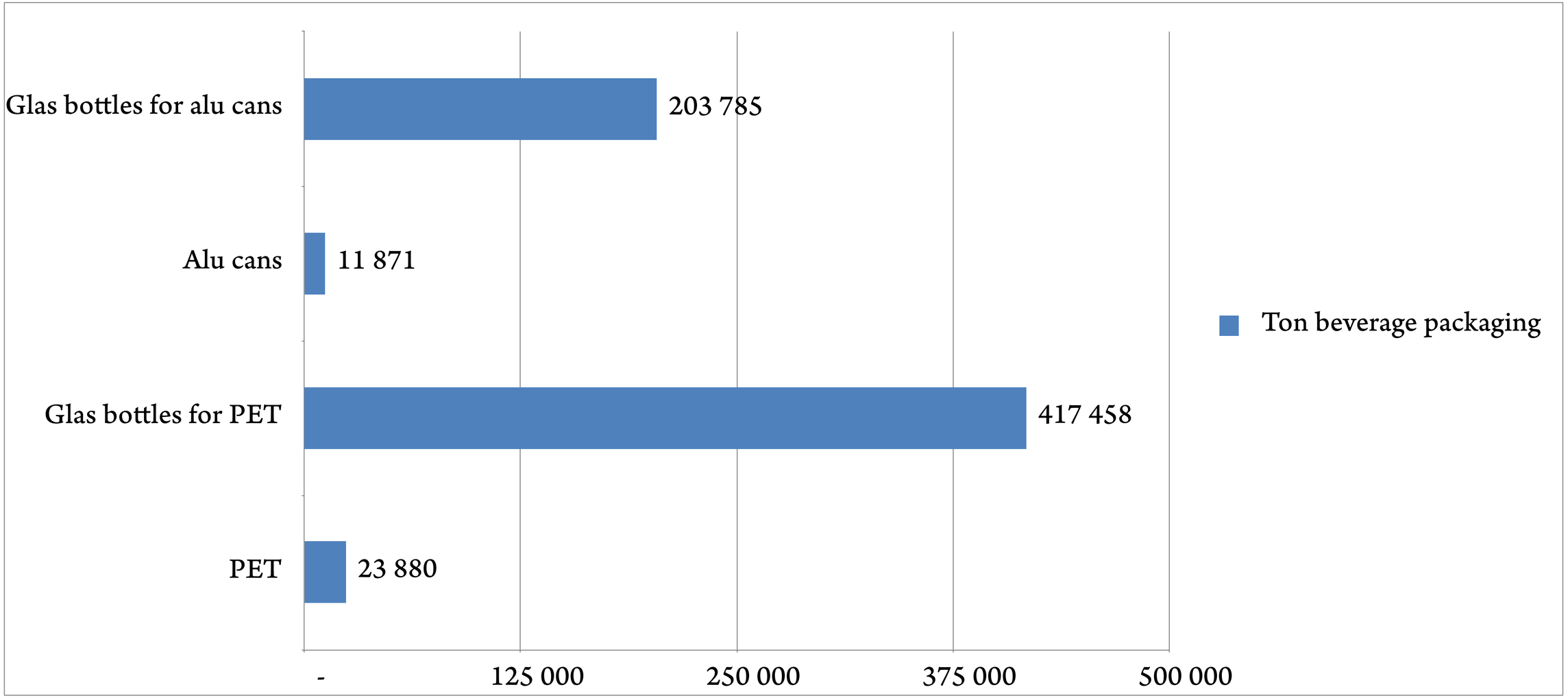
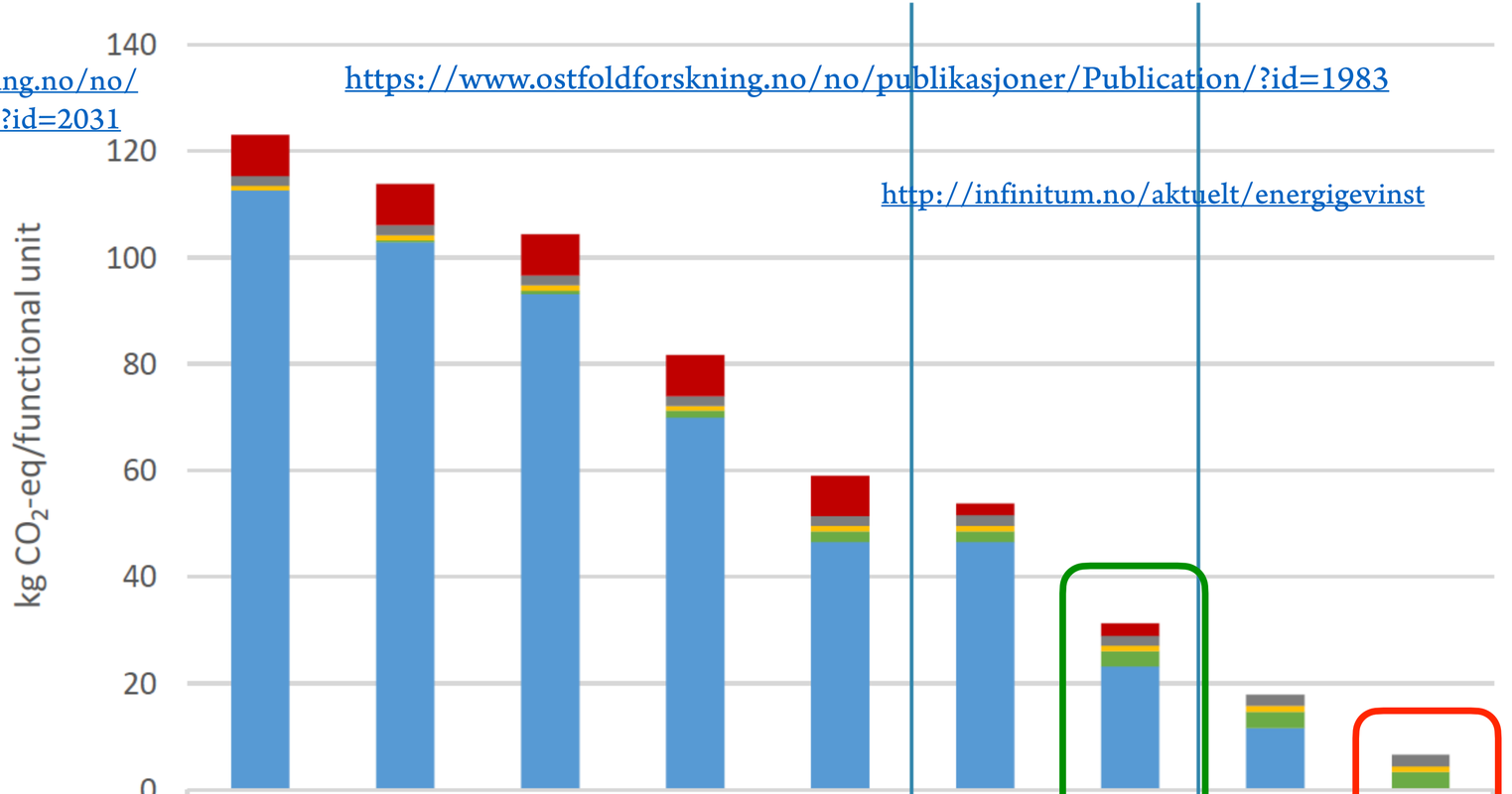


https://www.ostfoldforskning.no/no/publikasjoner/Publication/?id=2031

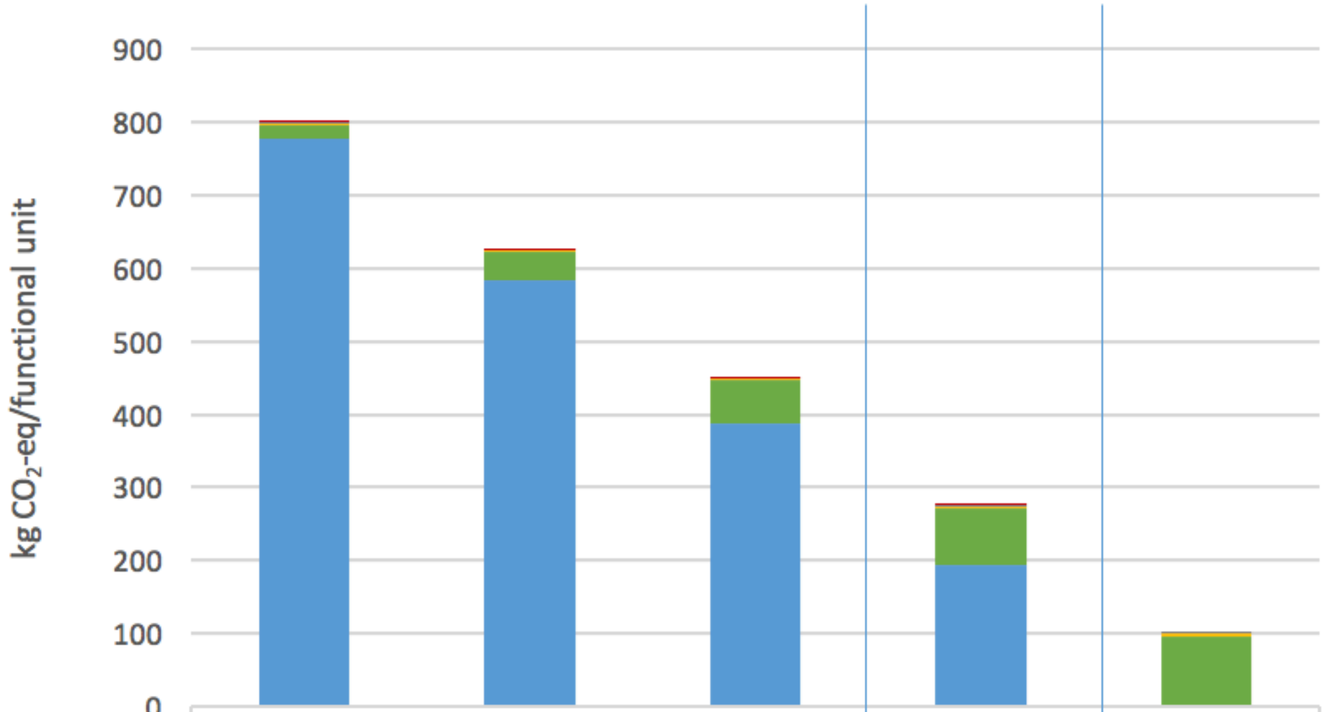
https://www.ostfoldforskning.no/no/publikasjoner/Publication/?id=1983

http://infinitum.no/aktuelt/energigevinst



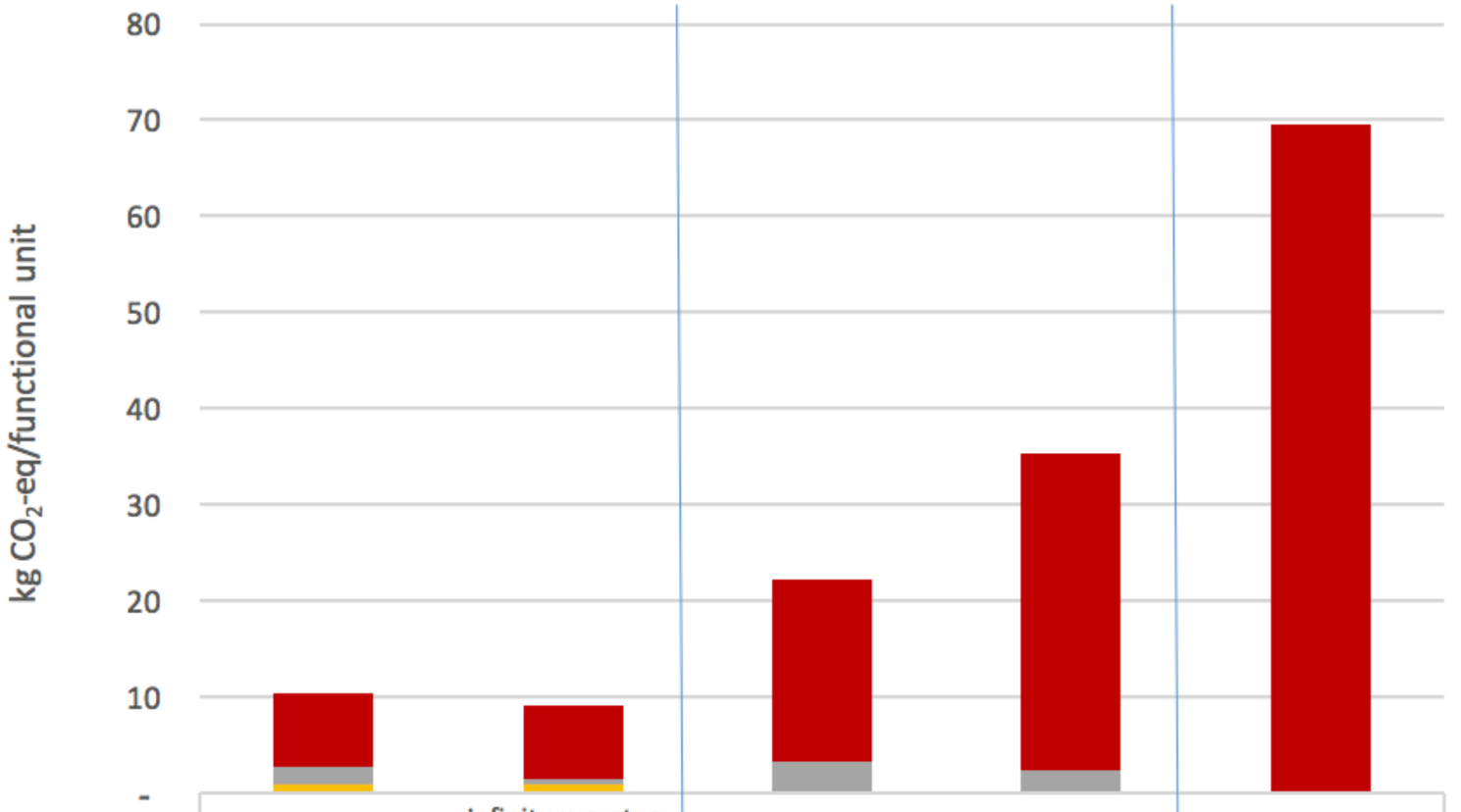
	Collection rate 87%, rPET 0%	Collection rate 87%, rPET 11%	Collection rate 87%, rPET 20%	Collection rate 87%, rPET 40%	Collection rate 87%, rPET 60%	Collection rate 95%, rPET 60%	Collection rate 95%, rPET 80%	Collection rate 100%, rPET 90%	Collection rate 100%, rPET100%
Incineration (incl. Transport)	7,7	7,7	7,7	7,7	7,7	2,2	2,2	0	0
Transport from consumers to recycling	1,8	1,8	1,8	1,8	1,8	2,0	2,0	2,1	2,1
Reverse vending machine	0,9	0,9	0,9	0,9	0,9	1,0	1,0	1,1	1,1
rPET in preform	0,0	0,4	0,7	1,4	2,0	2,0	2,7	3,1	3,4
vPET in preform	112,6	102,9	93,2	69,9	46,6	46,6	23,3	11,7	0
Total	123,0	113,8	104,4	81,7	59,1	53,9	31,3	17,9	6,6

Figur 4: Klimagassutslipp per funksjonell enhet (produksjon, innsamling og behandling av PET flasker benyttet til distribusjon av 1000 liter drikkevare) for optimaliserte scenarier for Infinitums system for PET- flasker.



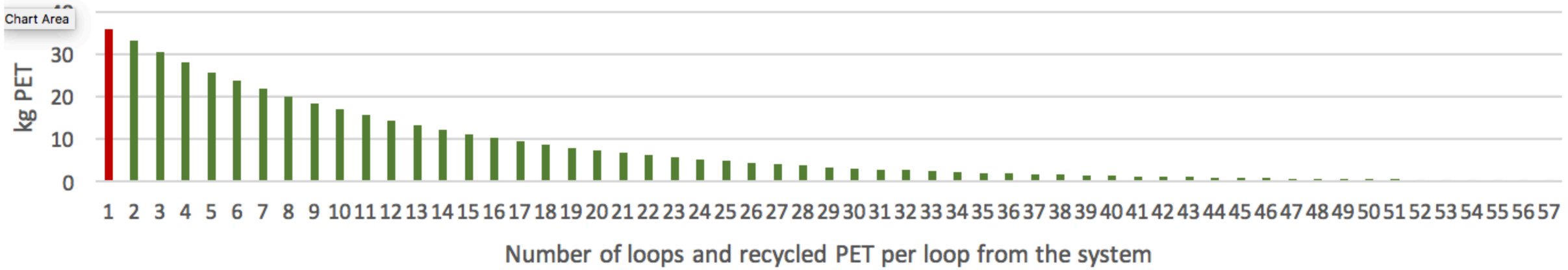
	Collection rate 86%, recycled Alu 20%	Collection rate 86%, recycled Alu 40%	Collection rate 86%, recycled Alu 60%	Collection rate 90%, recycled Alu 80%	Collection rate 100%, recycled Alu 100%
Incineration (incl. Transport)	0,4	0,4	0,4	0,3	0
Transport from consumers to recycling	1,3	1,3	1,3	1,3	1,5
Reverse vending machine	2,4	2,4	2,4	2,5	2,7
Recycled aluminium in cans	19,3	38,6	57,9	77,3	96,6
Virgin aluminium in cans	777,0	582,8	388,5	194,3	0
Total	800,4	625,4	450,5	275,6	100,8

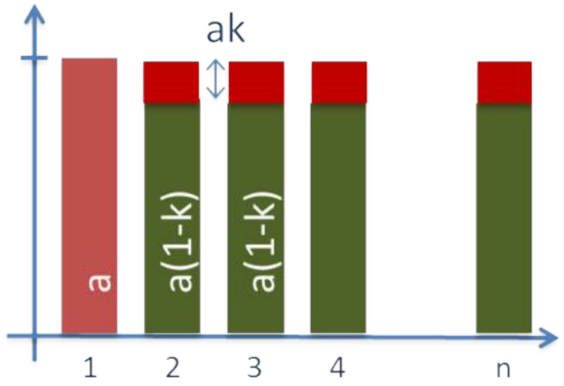
Figure 3.14 Global Warming Potential (GWP) shown as kg CO_2-eq per functional unit (production and collection of aluminium cans used for distributing 1000 L beverage) for the optimised Infinitum systems for aluminium cans.



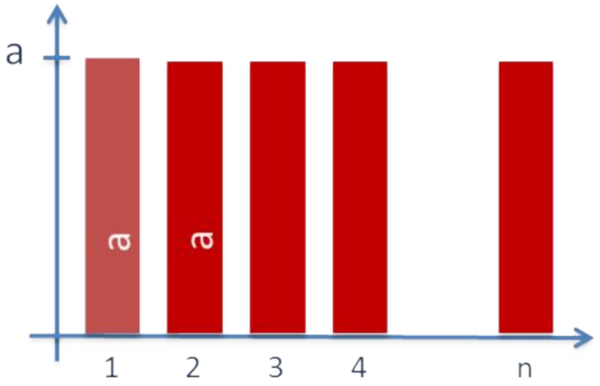
	Infinitum system, Main transport model (86 % collection rate)	Infinitum system, Infinitum's transport model (86 % collection rate)	GPN system (70 % collection rate)	GPN system (50 % collection rate)	Incineration scenario (93 % incineration)
Incineration (incl. Transport)	7,70	7,70	18,83	32,98	69,47
Transport from consumers to recycling	1,81	0,59	3,38	2,42	0,00
Reverse vending machine	0,94	0,94	0,00	0,00	0,00
Total	10,45	9,23	22,21	35,39	69,47

DEPOSIT AGAIN AND AGAIN AND … !

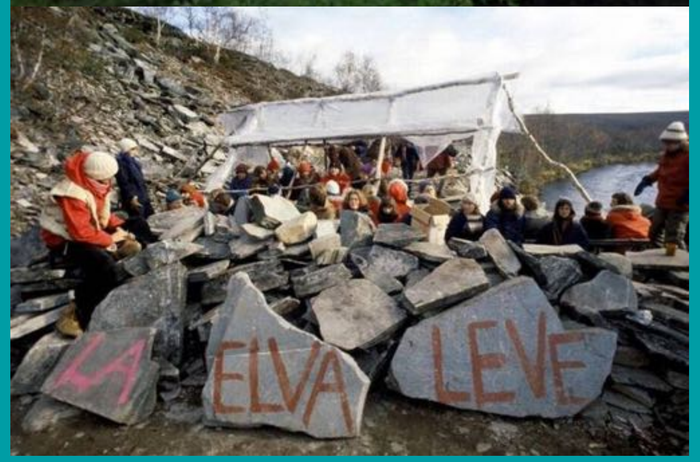




Recycling (virgin production and incineration of loss)

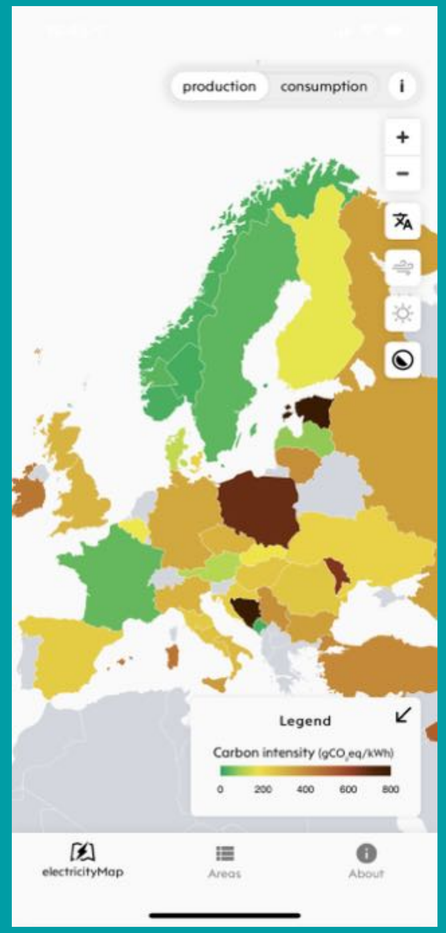


Virgin production and incineration



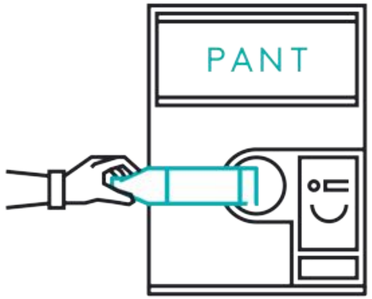
Annual saving of **3 108 GWh** when using PET bottles and cans instead of glass bottles!

4,7 Hydro power plant like Alta kraftverk!



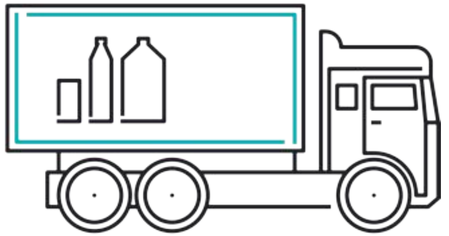
Annual saving of **3 108 GWh, e**quivalent to annual energy consumption of 1.3 million Tesla cars in Norway!

Happiness



Pant

Preparation

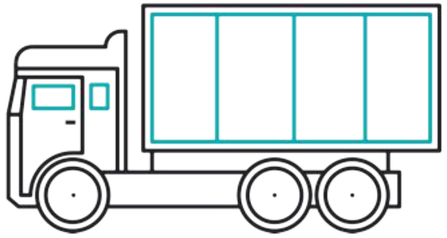


Pick up

THANK YOU

Transport

Sorting and bailing



Transport

High grade recycling

SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

DEPOSIT RETURN SYSTEM IN SLOVAKIA

6.11.2023

Slovakia

Why was the DRS introduced in Slovakia?

Before DRS implementation, approximately 60% of plastic bottles were collected using regular separate containers

Slovakia has committed to increasing the beverage packaging collection to 90% by 2025

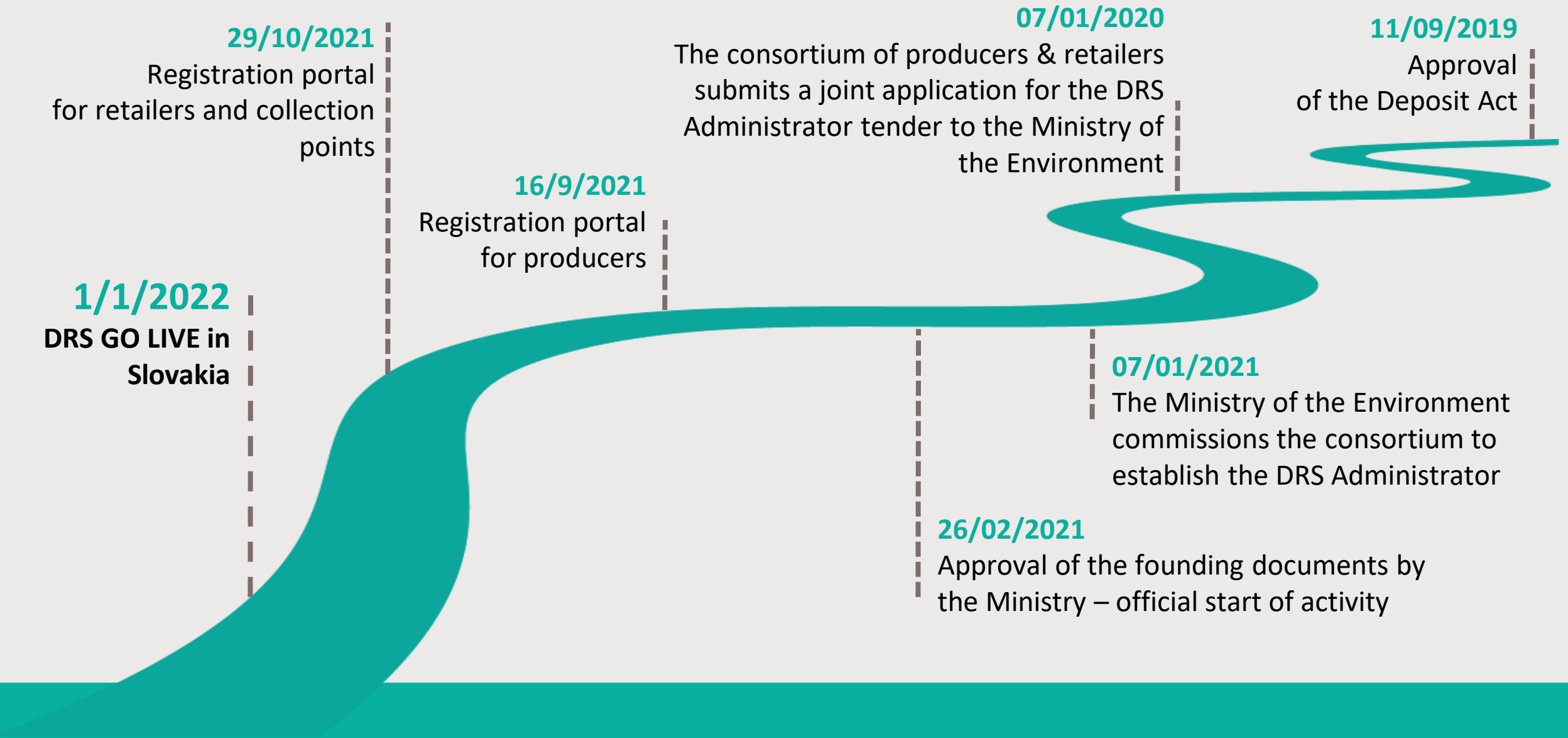
The DRS system collects more material of higher quality for recycling and reuse in new packaging

The DRS system reduces litter and increases the aesthetic value of our environment. The amount of litter from deposit packaging decreased by up to 95% in countries that introduced a DRS

The Slovak DRS adheres to circular economy principles and promotes recycling from bottle to bottle and from can-to-can (natural resources saving)

HOW THE DRS WAS CREATED

Implementation of a DRS in Slovakia
Important milestones



DRS Administrator

SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

- A non-profit organization
- Founded by obligated industry members (producer and retailer associations)
- Provides services based on authorization from the Ministry of the Environment of the Slovak Republic
- Responsible for the creation, administration, financing, and coordination of the deposit system in Slovakia, including educational promotional activities
- Corporate structure: board of directors, supervisory board, general manager (members of the boards nominated by the founding associations, three members of the SB nominated by the Ministry of the Environment)
- All deposit packaging is marked with this symbol 

Founders

The founding associations of the administrator in Slovakia are four non-profit associations representing:

- Producers of soft drinks, mineral waters & juices
- Beer producers
- Wholesalers and retailers (modern & traditional)

Together they represent 80% of all packaging placed on the market and more than 3,000 retail stores.

SLOVENSKÁ ALIANCIA MODERNÉHO OBCHODU

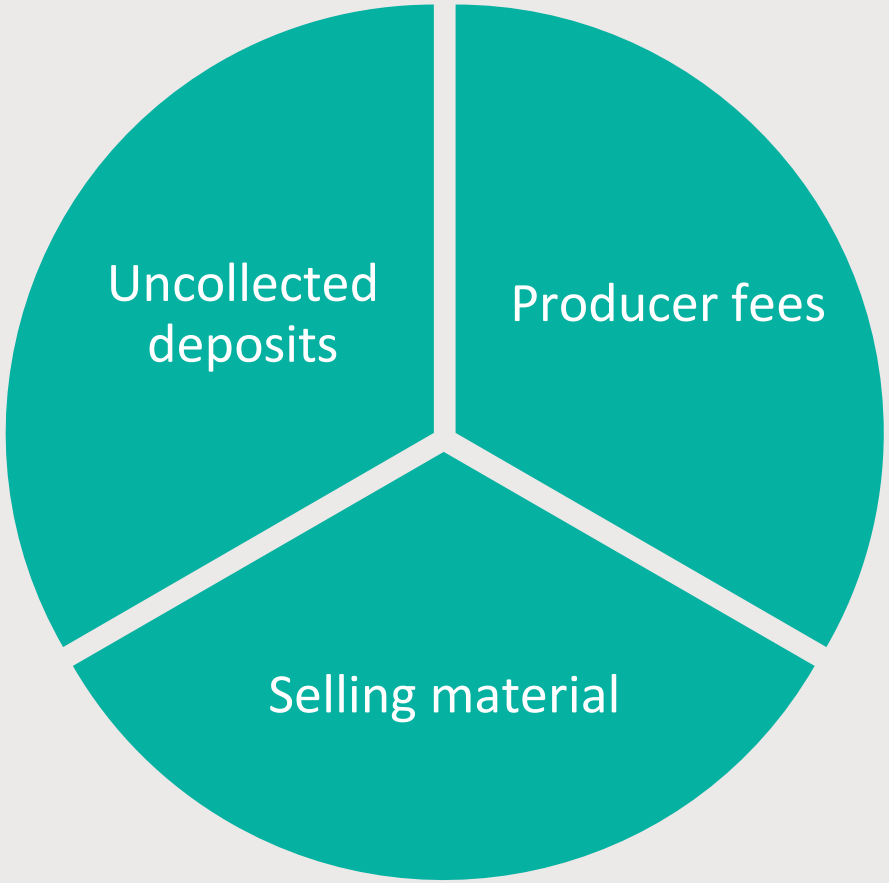
Zväz obchodu SR

Asociácia výrobcov nealkoholických nápojov a minerálnych vôd na Slovensku

SLOVENSKÉ ZDRUŽENIE VÝROBCOV PIVA A SLADU

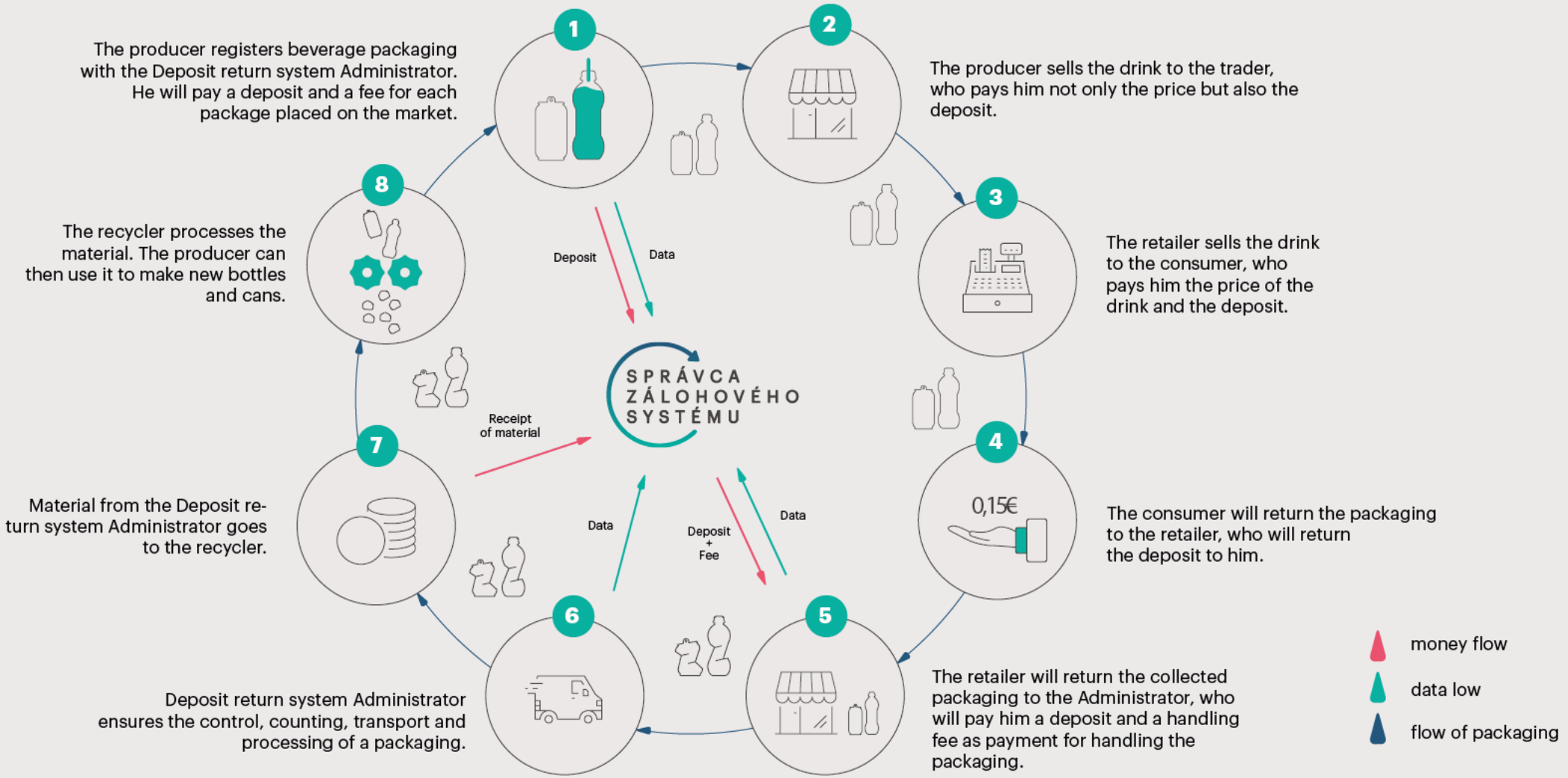
Financing the administrator's activities

As a system of extended producer responsibility, the DRS is financed by:



HOW THE DRS WORKS IN SLOVAKIA

Deposit return system
How does it work?



Subject to the deposit as of 2022 in Slovakia

Single-use beverage containers – plastic bottles & cans with a volume from 0.1 L to 3 L

Metal (Al a Fe can)

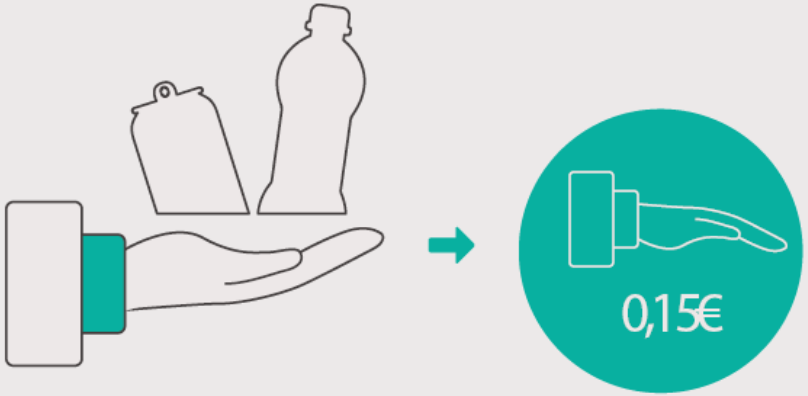
Plastic (PET, HDPE,PP)

System includes all disposable containers from plastic (bottles) and metal (cans) with a volume of 0.1L to 3L inclusive, with the exception of milk, syrups and hard liquor (more than 15 %). For the purpose of the law, "liquid foodstuffs containing more than 80 % of water capable of satisfying the physiological need for water, do not include milk".

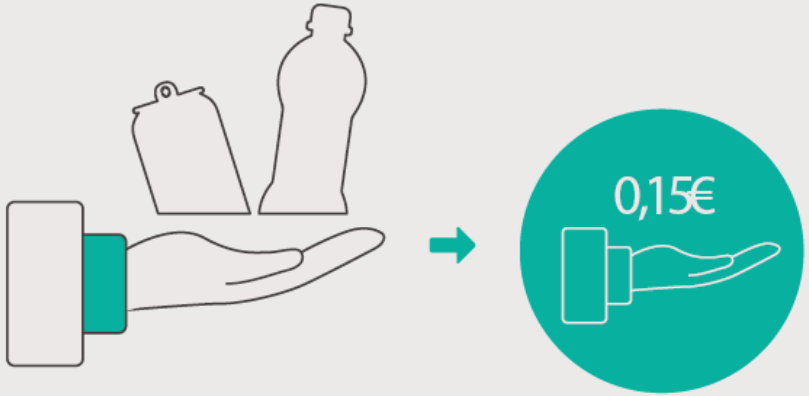
This definition includes all ready to drinks such as carbonated soft drinks, non-carbonated soft drinks, mineral waters, spring waters, baby waters, flavored waters, fruit juices, nectars, fruit drinks, iced teas, sports drinks, energy drinks, beer, cider, perry, radler and fruit wine.

Unified deposit for plastic bottles and cans

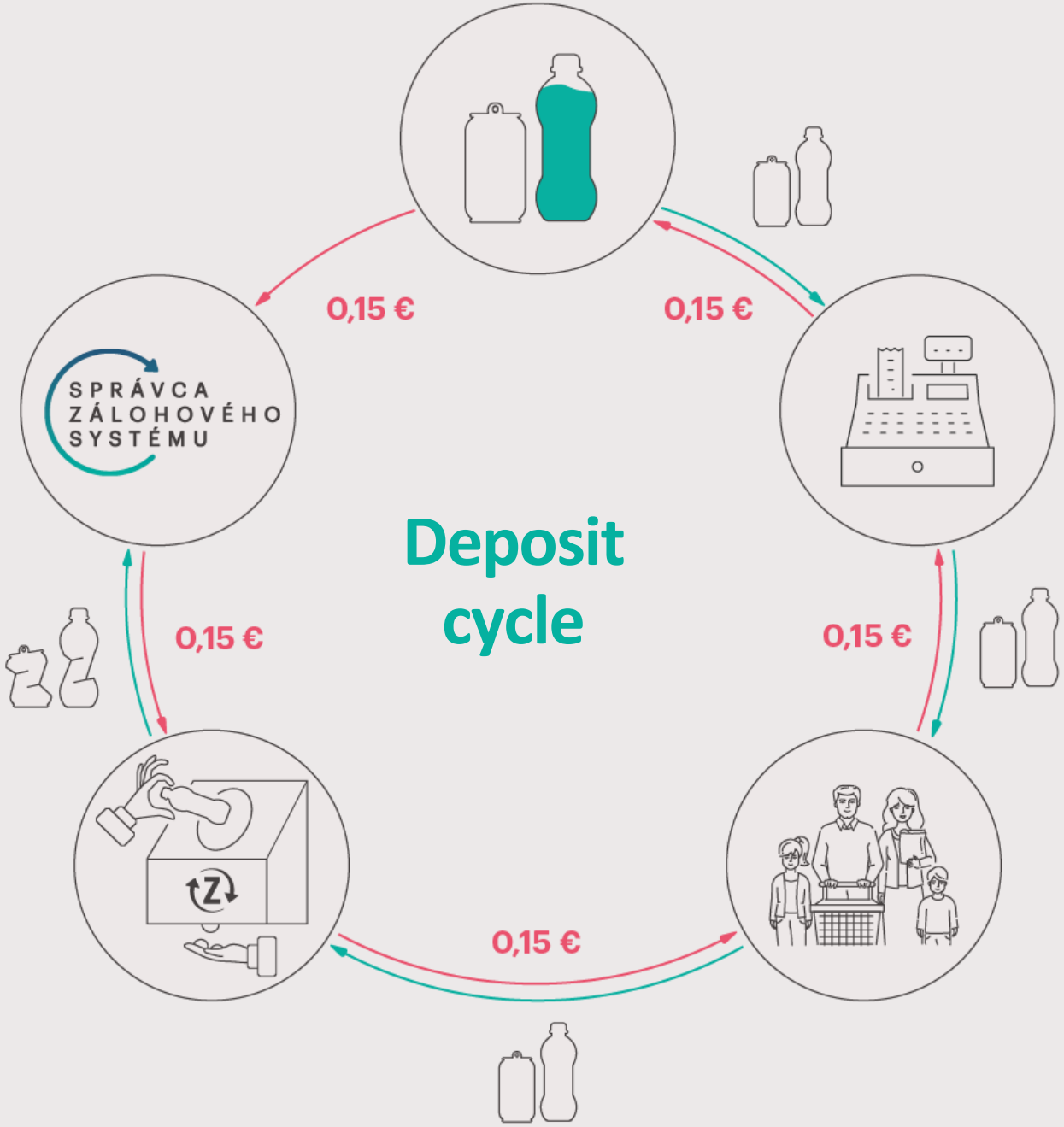
Purchase a drink



Return of packaging



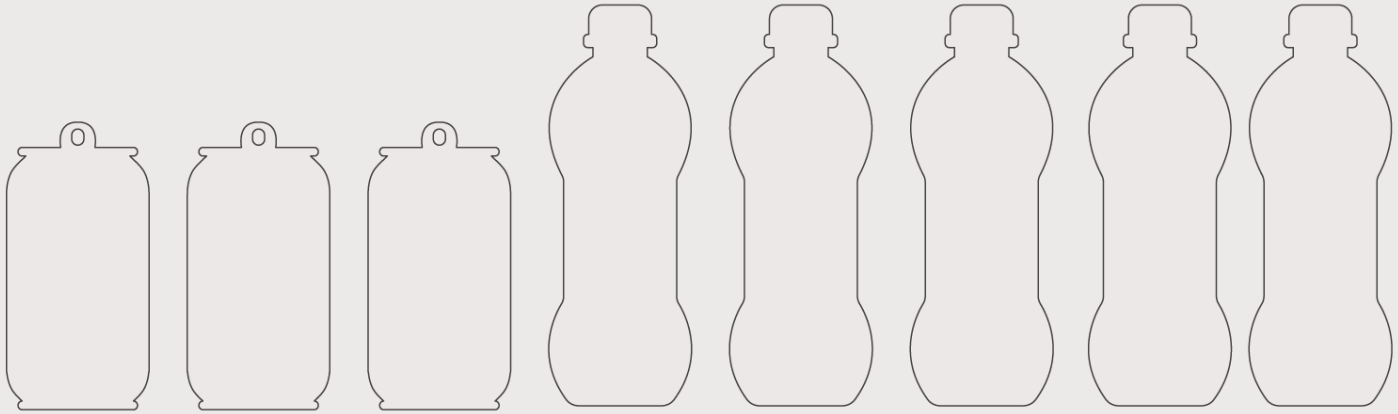
The deposit amount is stated separately from the price of the drink.


0,15 €
0,15 €
SPRÁVCA ZÁLOHOVÉHO SYSTÉMU
Deposit cycle
0,15 €
0,15 €
0,15 €

The following were placed on the market (approximately) in 2022:

1.15 bn

containers



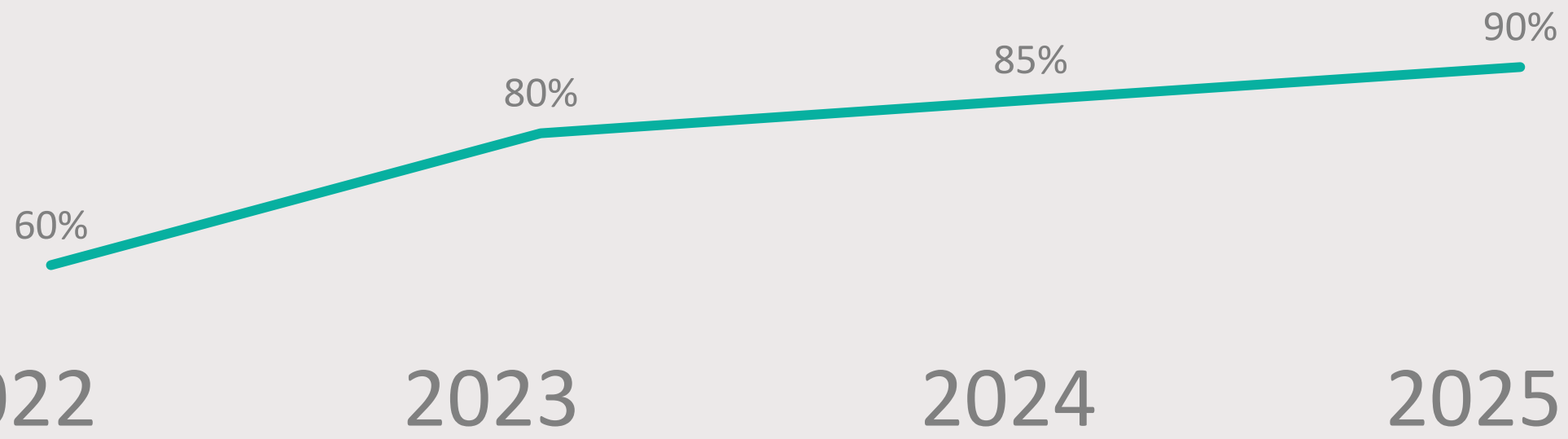
44% cans

56% PET bottles

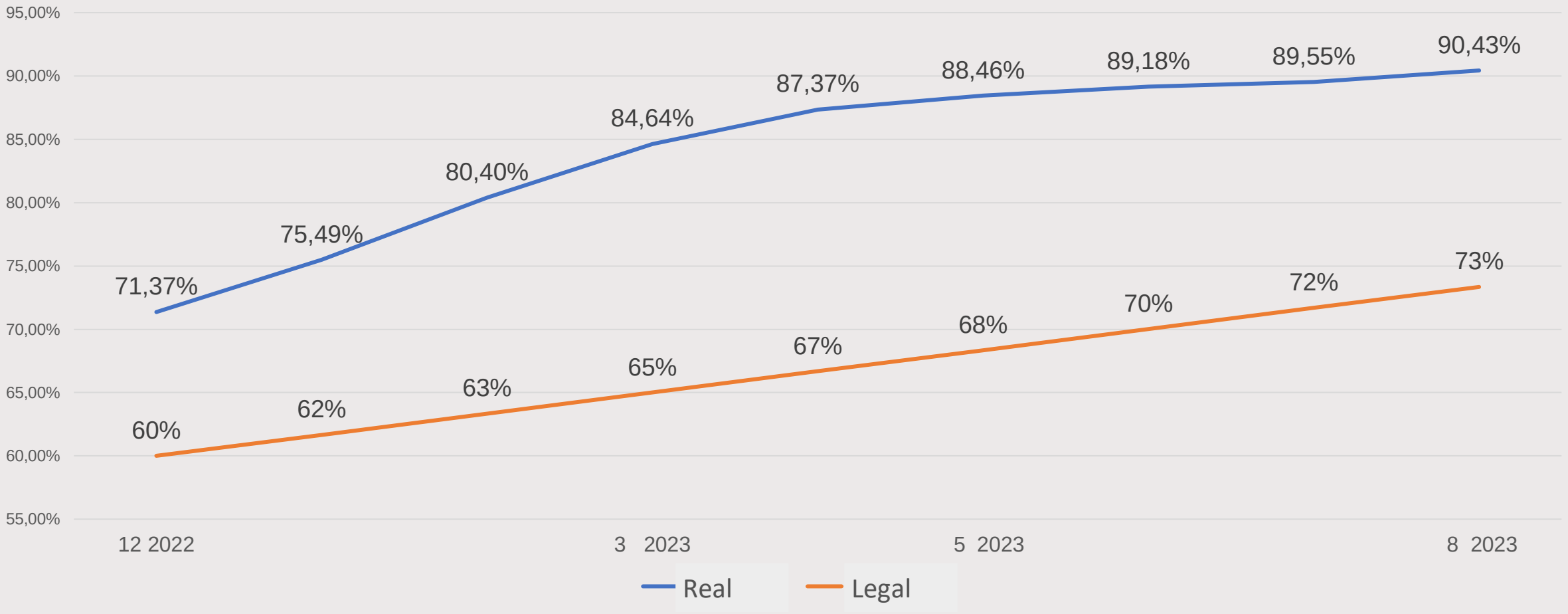
The return target for 2023 set by legislations is at least 80% of the weight of the packaging distributed on the market.

The purpose of increasing the return rate of deposit bottles and cans

- Increase the collection of beverage packaging
- Then effectively recycle and use it to produce new packaging



Comparison of return rate development

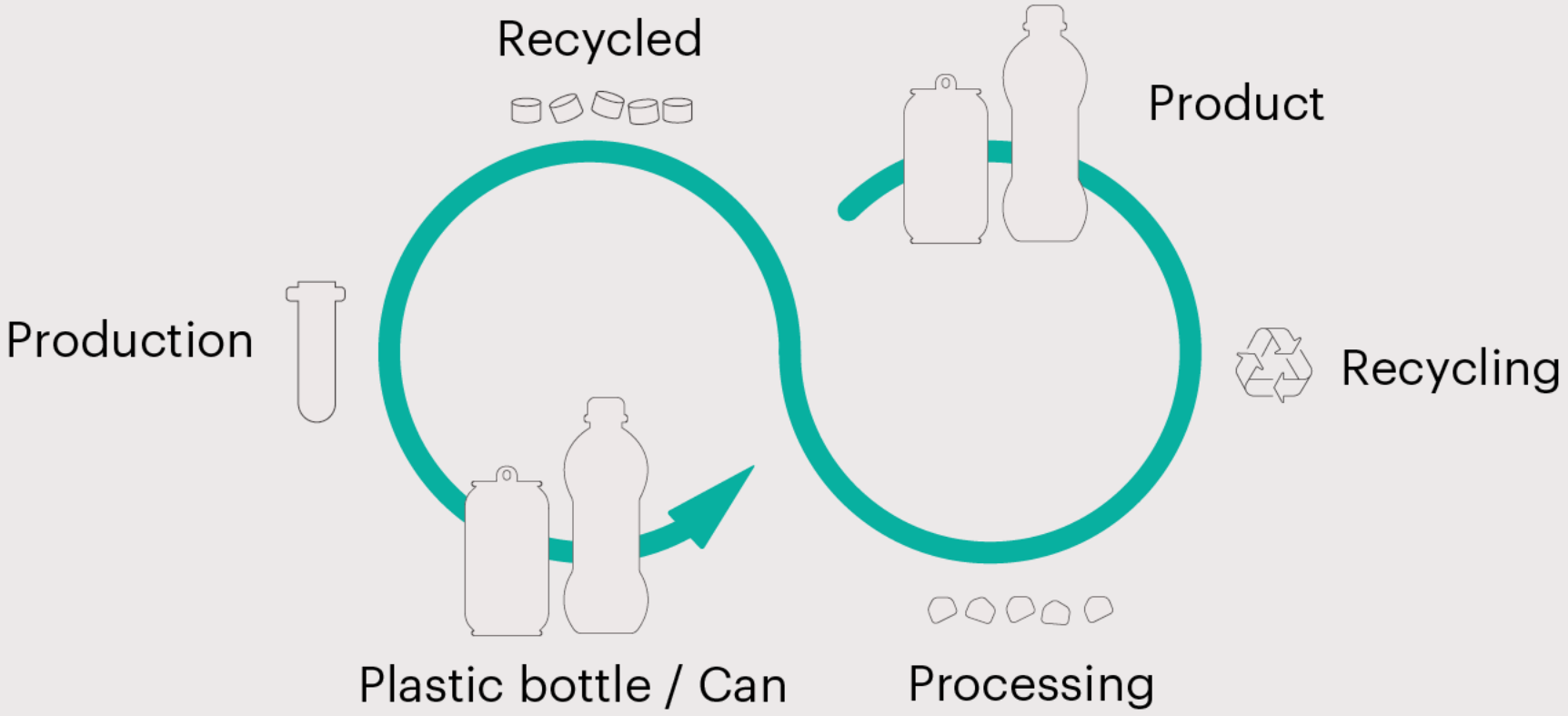


INVOLVEMENT OF PRODUCERS IN THE DRS SYSTEM IN SLOVAKIA

Producers have to:

- Conclude a contract with obligations.
- Set and comply with the deposit amount.
- Ensure that the packaging is clearly labeled and that the buyer can tell by the label that it is covered by the deposit return system.
- Register the beverage deposit packaging before placing it on the market.
- Keep separate accounting records of the product price and the deposit.
- Reimburse the deposit administrator for each package they place on the market in accordance with the concluded contract.
- Reimburse the deposit administrator for all costs associated with participation in the deposit return system (fees in accordance with the contract).
- Keep records of the deposit packaging and report data from it to the deposit administrator to the extent necessary for the performance of its tasks (report monthly data on the amount of deposit packaging put on the market in both pcs and kg).

The DRS improves recycling from bottle to bottle as well as from can to can



Producer´s right to purchase material Option

- SUP Directive introduces the obligation to produce new PET beverage bottles containing recycled plastics:

  - at least at the level of 25% from 2025;

  - at least at the level of 30% from 2030.

- The DRS system has the potential to ensure the high quality and purity of the collected materials, which can subsequently be used for the production of new beverage packaging
- The main goal of the material option system is to ensure the circularity of the material (principles "from bottle to bottle" and "from can to can"), i.e. supporting the use of the material for the same purpose for which it was originally produced
- The introduction of the right to use the material option is enshrined in the founding documents of Správca and the aim is to support the fulfillment of legal obligations and voluntary obligations of producers
- Producers are entitled to such an amount of material that they can use for recycling and production of new PET bottles and ALU cans; at most, however, in the amount of its share of deposit packaging placed on the Slovak market ("fair share" principle)

Information on the results of the PtP and CtC Option Sale

Option

- The option ensures material circularity (bottle2bottle, can2can principles) and at the same time producers have access to clean material in order to fulfill the goals of the approved EU legislation.
- Producers are entitled to the quantities of material they can use for recycling and to produce new PET bottles and ALU cans, but at most the equivalent of their share of packages sold on the Slovak market (fair share).
- Producers are not authorized to trade with the material they receive or to use it to produce products other than PET bottles and cans

Material	Option in 2022 (t)	Percentage of the total amount processed in the Sorting Center in 2022	Expected percentage of the total amount processed in the Sorting Center in 2023
PET	4 325	41%	75%
ALU	2 216	49 %	68%

INVOLVEMENT OF RETAILERS IN THE DRS SYSTEM IN SLOVAKIA

Types of collection points

MANDATORY COLLECTION POINT

Stores with at least
300 sqm of sales area

[300m²]

VOLUNTARY COLLECTION POINT

Stores with less than
300 sqm of sales area

<300m²

Types of approved solutions for receiving deposit packages

Fully automated collection through a reverse vending machine called a “Zálohomat”

Semi-automated collection
Compactor with manual scanner

Manual collection
Manual scanner


VRATNÉ OBALY
ZÁLOH SA VZŤAHUJE NA PRÁZDNE PET FĽAŠE:
- označené symbolom
- nepoškodené
- nestlačené
- s čitateľnou etiketou
- s čiarovým kódom


Vykúpime
VAŠE PLASTOVÉ FĽAŠE A PLECHOVKY
ZO ŽIVOTA NA SKLÁDKE
BILLA


TU hoď
PET fľaše
plechovky
sklo
Buď EK
a recykluj
s nami!
Vitamín D3
2000 IU


ZÁLOHOMAT
jednotne-ekologicky.sk
ĎAKUJEME, ŽE CHRÁNITE PRÍRODU
OD 1. JANUÁRA NEKRČÍME, NEZAHADZUJEME, ZÁLOHUJEME. JEDNODUCHÉ.


Budúcnosť životného prostredia máme vo vlastných rukách
Budúcnosť životného prostredia máme vo vlastných rukách
UPRACME SI SLOVENSKO

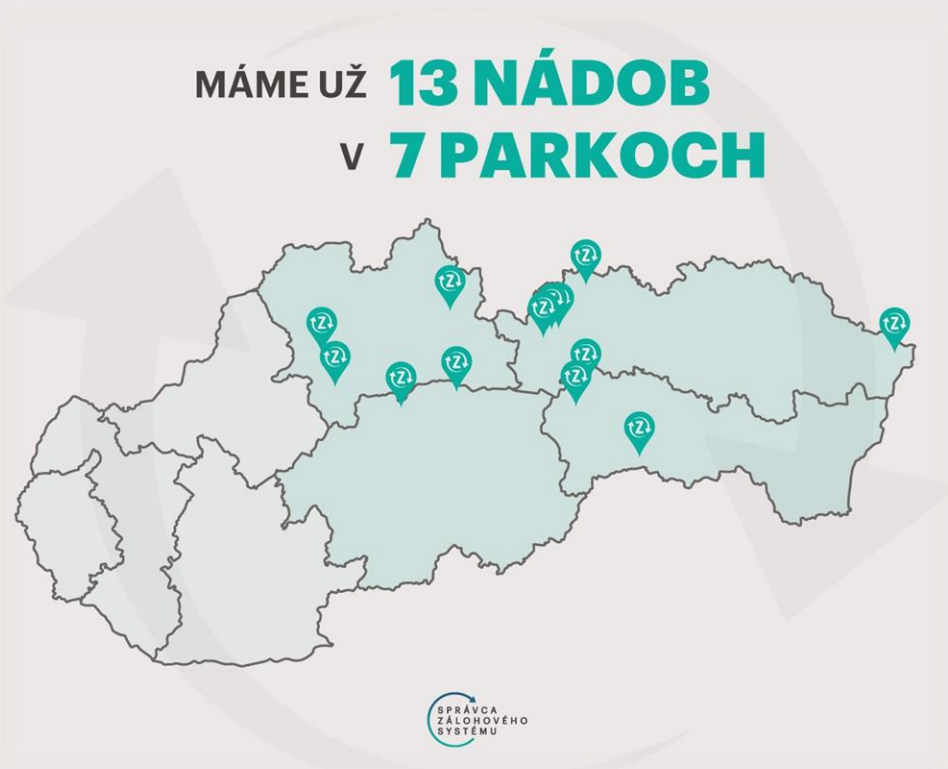

Skenovanie
1.5L

Alternative collection points

- Creating the possibility to return deposit packaging in areas other than a store that sells drinks.
- At an alternative collection point, a customer does not receive a printed coupon for the return of the deposit - the consumer leaves the packaging at the collection point (both the packaging and the deposit) and thus contributes e.g. to charitable or other necessary activities.
- These may be places other than stores where deposit beverage containers are sold, or places where, due to the greater frequency of people, there is an accumulation of deposit beverage containers.
- Alternative collection points can be, for example:
    - Hotels, restaurants
    - Vending companies
    - Companies that provide drinking water for employees
    - Aquaparks
    - Sport centers
    - Schools
    - Festivals or other cultural events

Collection containers in national parks

- Správca, in cooperation with the national parks authorities, has expanded the network of collection containers.
- Containers through which visitors can support the restoration of national parks have been added in the High Tatras, Low Tatras, Pieniny, Poloniny, Slovak Paradise, Slovak Kras and Veľká Fatra.
- By handing over a deposit packaging or can in such a container, visitors donate it to the national park in which they are located.



COLLECTING DEPOSITED PACKAGING FROM COLLECTION POINTS

Package progress in the deposit system

Store/collection point

Collection of deposit packages.
Plastic bottles and cans are collected separately and then transported by the Administrator.

Collection is through automated collection (backup checker), semi-automated collection (compactor) or manual collection (hand scanner), in which case the packages are transported uncompressed.

Inter-warehouses

Six locations

The packages are transported from the collection point to the warehouses by the Administrator.

Inspection, counting, compaction and transport to the sorting centre.

Sorting centre

One location

The packaging is sorted by material and colour (five colour streams for PET) and compacted into packages ready for recyclers.

The recycling itself does not take place at the Administrator.

SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

Sorting centre and warehouses

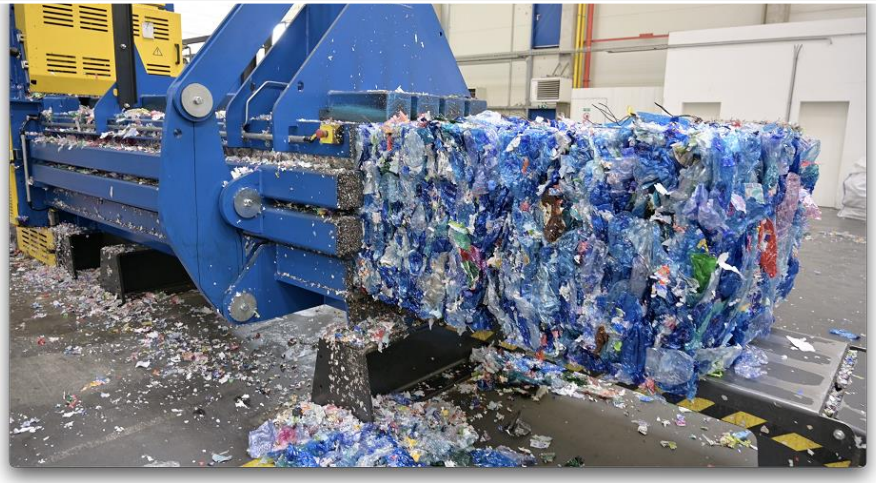
Production capacity of the PET and CAN line

Sorting capacity of the PET line

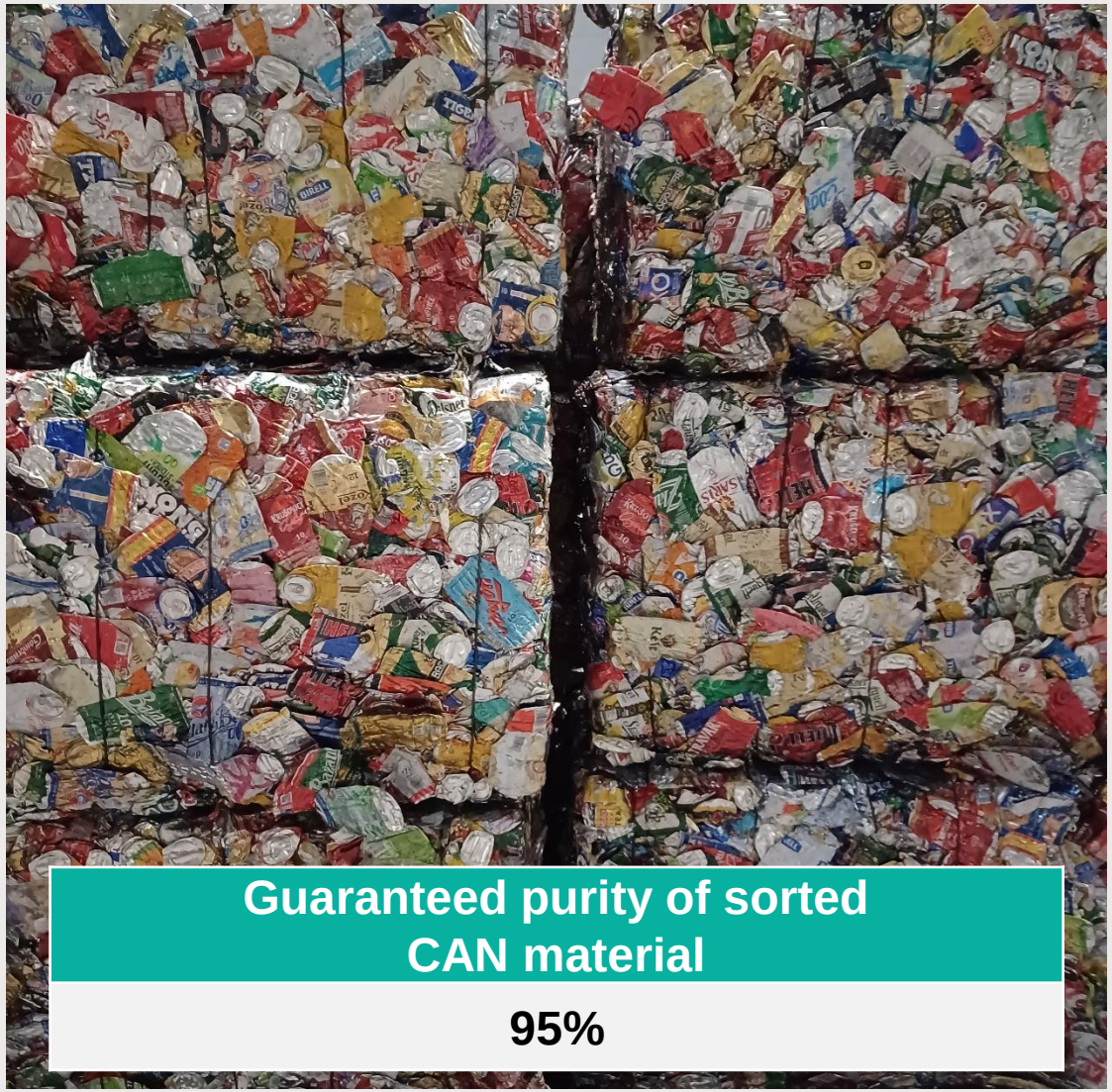
4,5t/h

Sorting capacity of the CAN line

2,5t/h



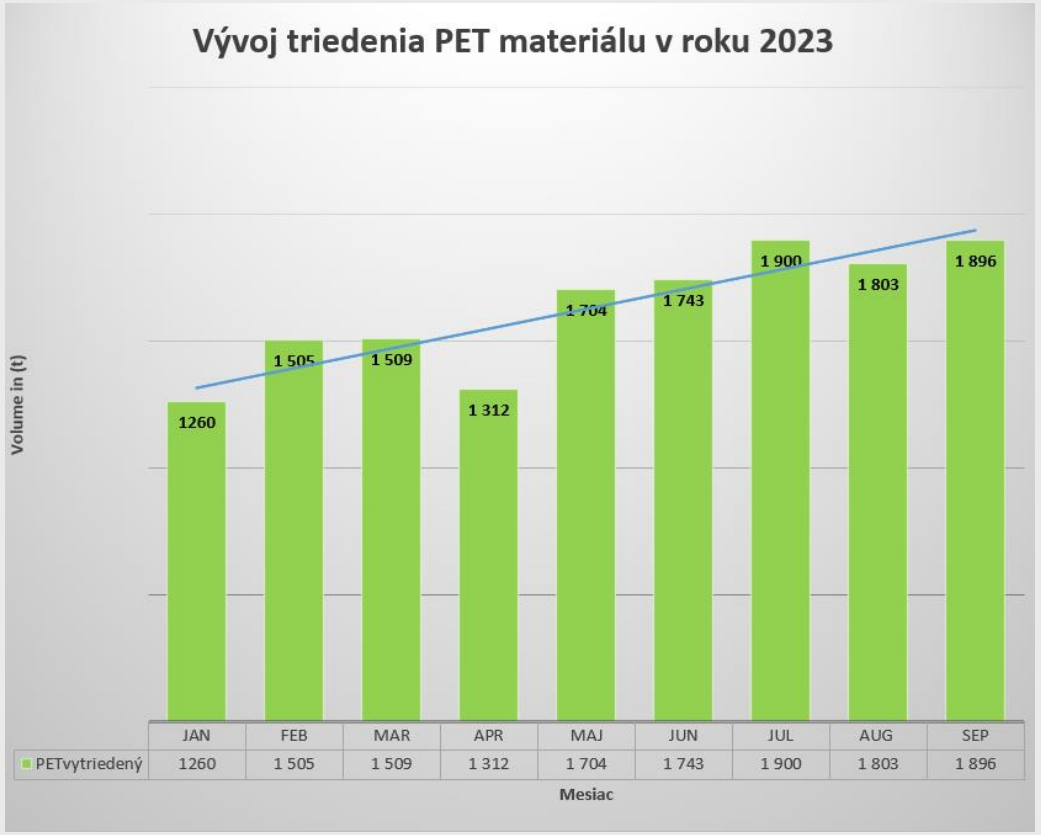
Purity of sorted PET and CAN material



Guaranteed purity of sorted CAN material
95%

Guaranteed purity of sorted PET material
93%

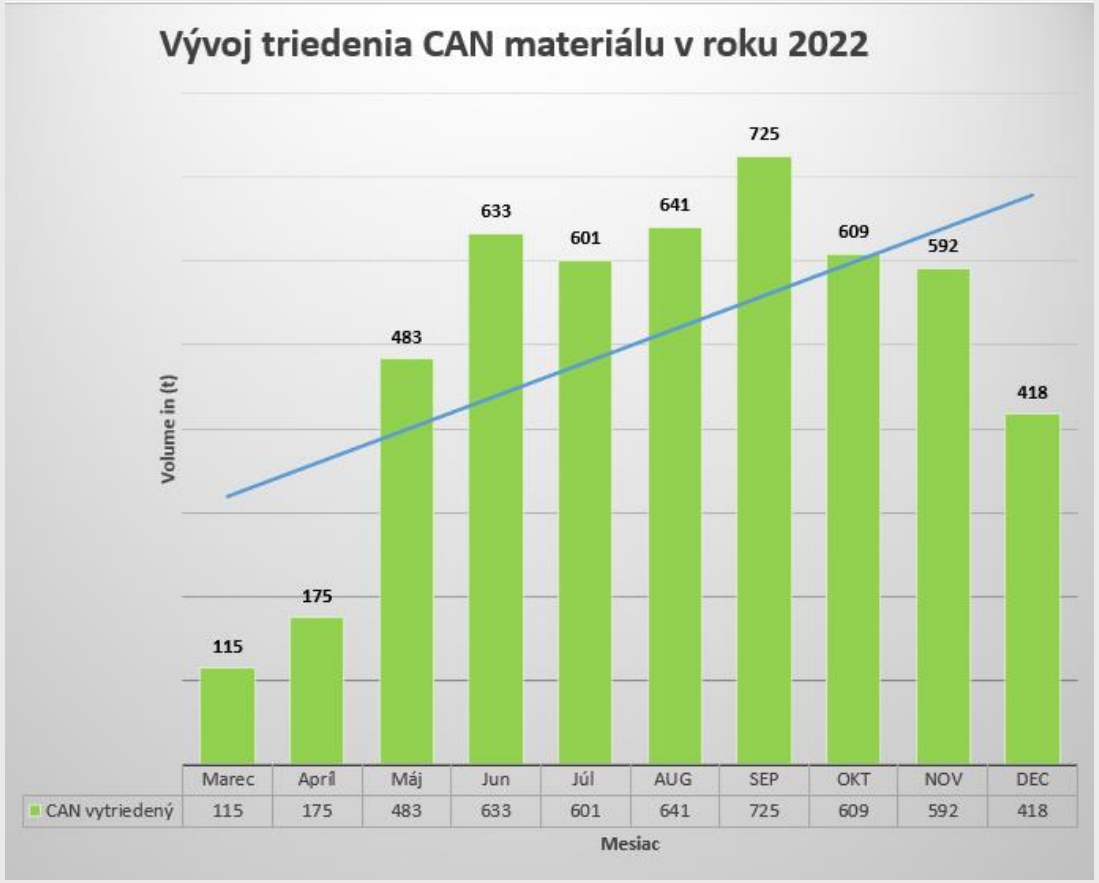
Development of sorted PET material for 2022-2023

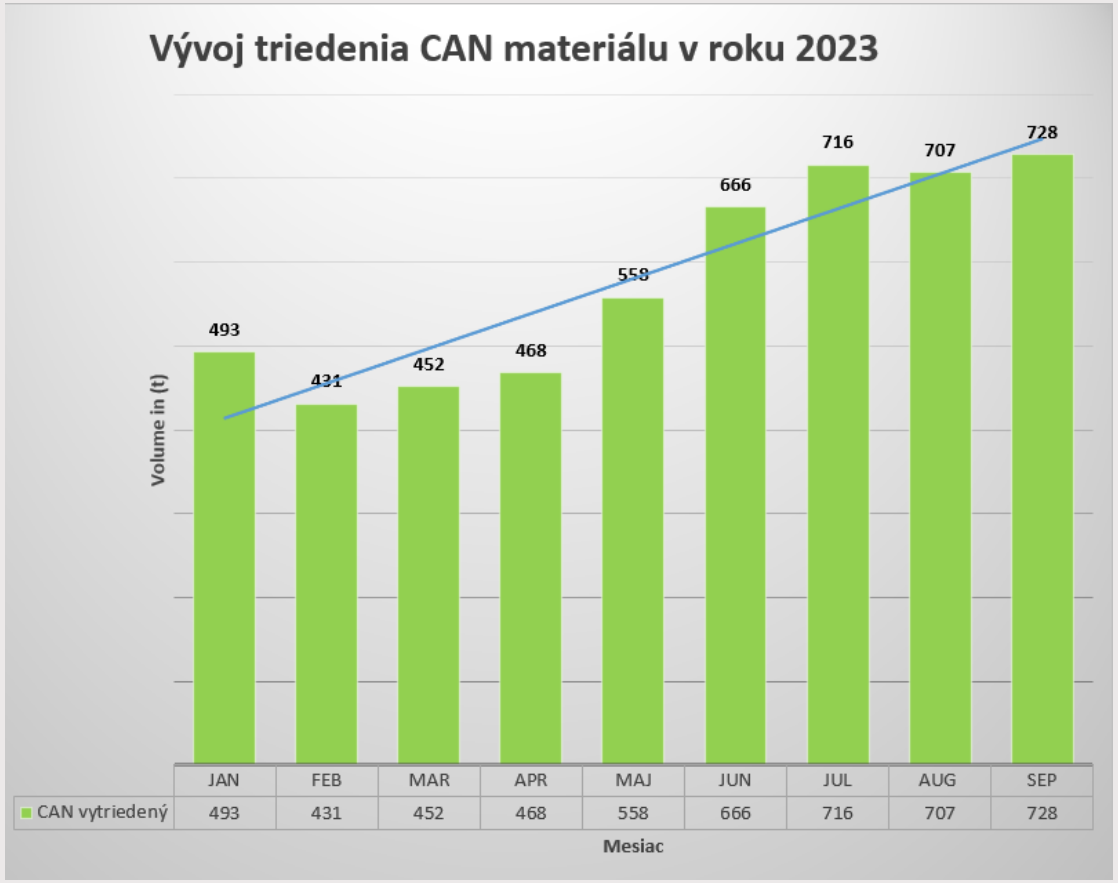


Amount of processed plastic packaging 2022
9493t

Amount of plastic packaging processed 2023 (YTD)
14 603 t

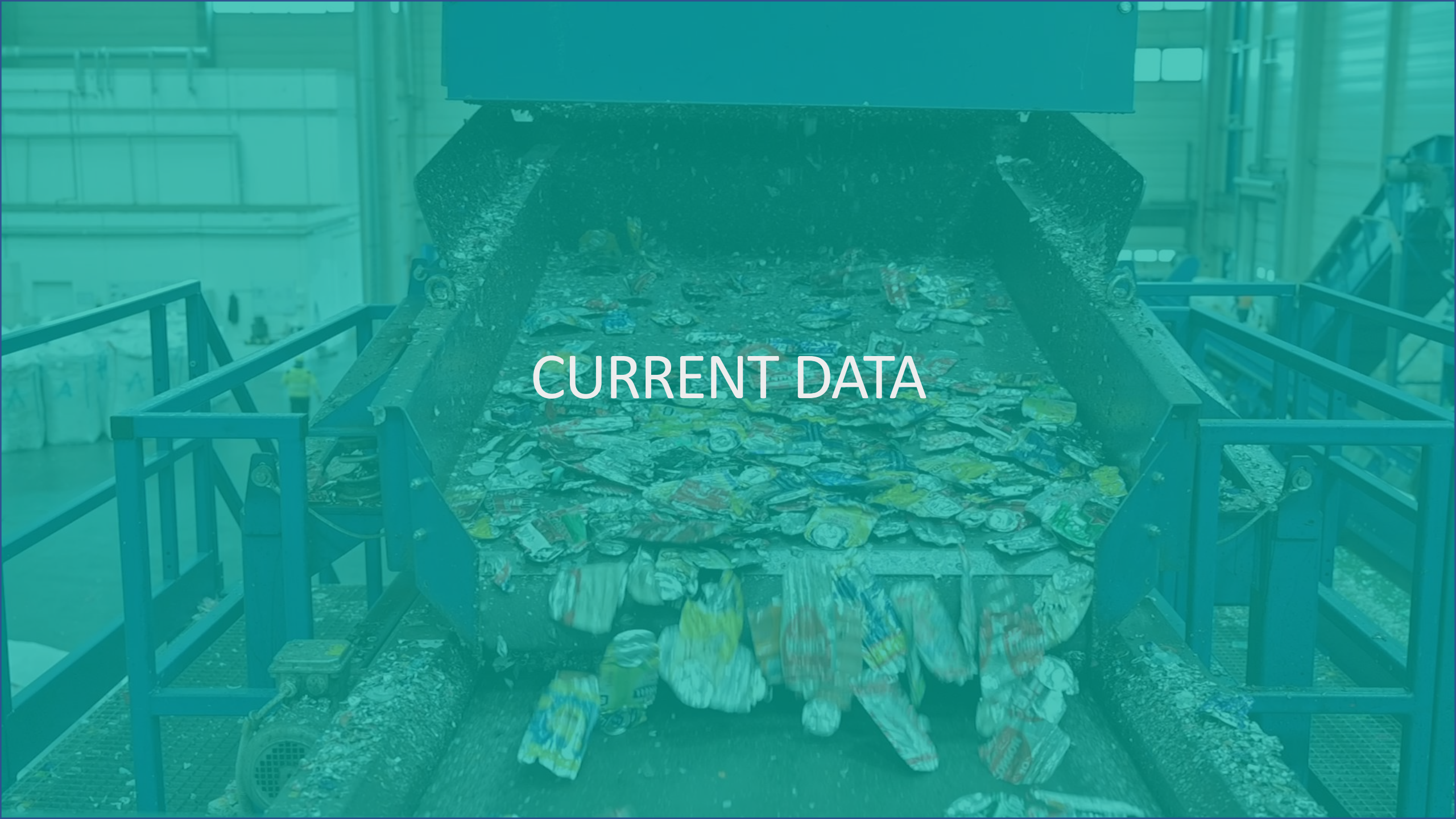
Development of sorted CAN material for 2022-2023





Amount of processed Plastic Packaging 2022
4992 t

Volume of Metal Packaging Processed 2023 (YTD)
5219 t


CURRENT DATA

SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

The following are active in the deposit return system:

327
Producers

4 479
EAN codes

308
Retailers

3 243
Collection points

36%

64%

mandatory collection points

300m²

voluntary collection points

< 300m²

Types of collection points

74%

Automated collection points with a deposit machine

26%

Collection points with a handheld scanner

SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

In 2022 – more than **820,000,000** deposit beverage packaging units were collected - **return rate of 71%.**

In 1st half of 2023 – more than **490,000,000** deposit beverage packaging units were collected - **return rate of 88%**

In total, we collected more than **1.3 billion** deposit beverage packaging units, giving an achieved **return rate of 77%.**

Comprehensive statistics for 2022

Plastic packaging	
The amount of plastic packaging placed on the market in Slovakia:	21.751,56 ton
Amount of plastic packaging collected:	15.780,62 ton
Amount submitted for recovery and recycling:	14.169,81 ton

*Note: the difference quantity was processed in the Sorting Center and was handed over for recovery in 2023)

Metal packaging	
The amount of metal packaging placed on the market in Slovakia:	8.051,47 ton
Amount of metal packaging collected:	5.481,44 ton
Amount submitted for recovery and recycling:	4.727,42 ton (thereof 4.529,72 t aluminum / 197,70 t iron)

*Note: the difference quantity was processed in the Sorting Center and was handed over for recovery in 2023)

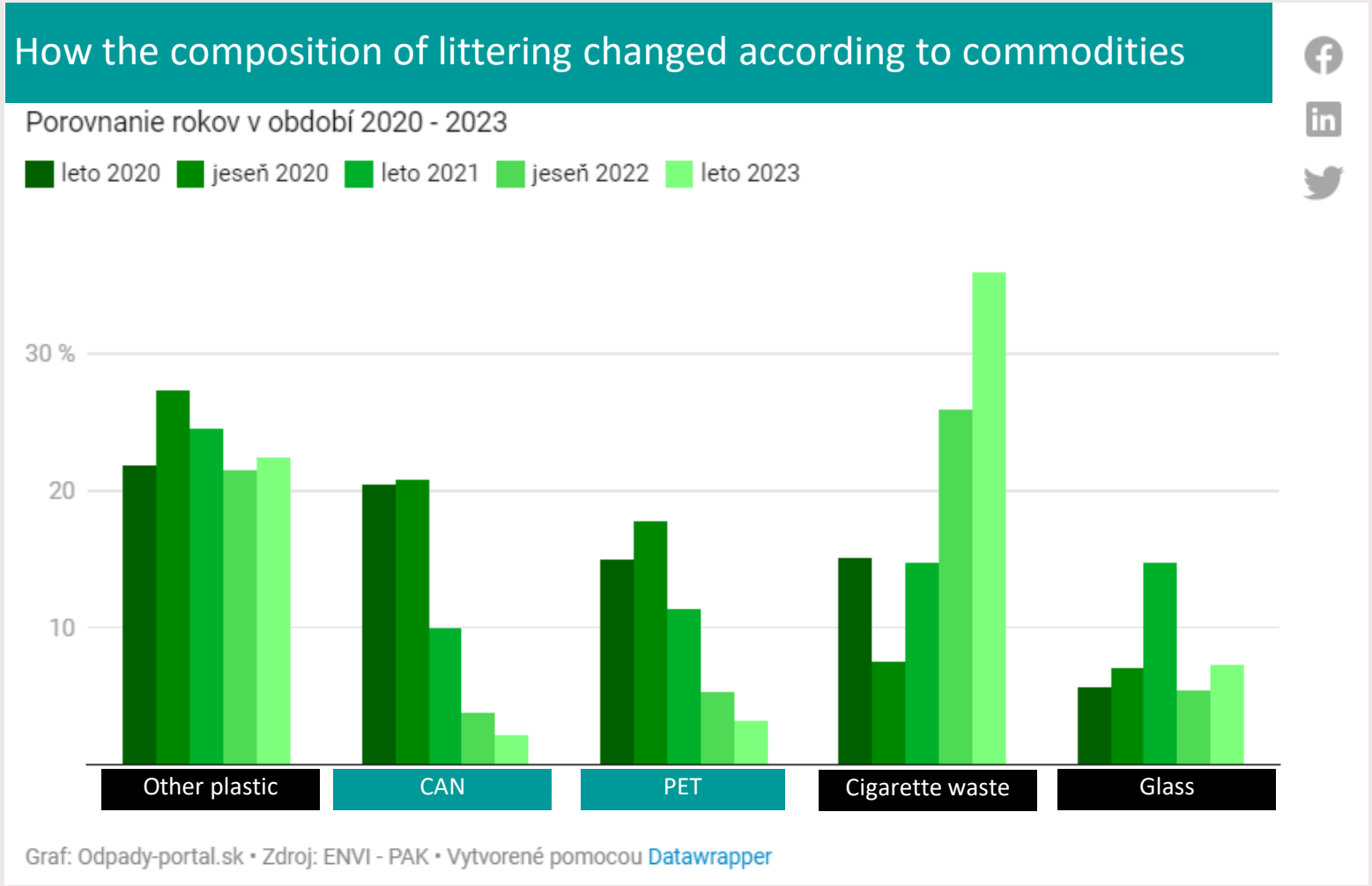
Number of placed pieces in 2023	
The amount of plastic packaging placed on the market in Slovakia:	646.723.414 pcs
The amount of metal packaging placed on the market in Slovakia:	503.425.363 pcs

SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

Littering - reducing waste in nature

- Before the introduction of the DRS in the summer of 2020, **cans made up to 20.5% and PET bottles 15% of the collected waste.**

- After the introduction of DRS in autumn 2022 it was only 3.8% of cans and 5.3% of PET bottles, and **this summer (2023) only 2.2% of cans and 3.2% of PET bottles,** *(*figures from Envi-Pak analysis).*



SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

Consumer satisfaction

- **93% of the Slovak population sees the introduction of the deposit system as a right step.** According to the experience of those interviewed, the system helped to reduce the amount of discarded PETs and cans in nature.

- **82% deposit regularly**, only 1% of respondents admitted in the survey that they do not return packaging at all.

- **80% of the population perceives a deposit of 15 euro cents as sufficiently motivating** to return the used packaging to the collection point.

- **Collection points in grocery stores suit Slovaks**, said more than four-fifths of the respondents. Half of them return packaging most often in supermarkets and a quarter in hypermarkets, and 15% most often go to the smaller store closest to their home.

**The survey was conducted in Slovakia on a sample of 1009 respondents in July 2023. Data collection was carried out in July 2023 through the Instant Research application of the Ipsos agency.*

SPRÁVCA ZÁLOHOVÉHO SYSTÉMU

Thank you for your attention

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