

INFINITUM





INFINITUM AS

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

1.2 billion cans and bottles in 2018.

- 22 400 tonnes of PET
- 80% of recycled content in all PET bottles possible in Norway today!
- 9 300 tonnes of aluminum
- Recovered by Hydro Holmestrand (Norway)

Shortest possible path between main task for the packaging material

7 OUT OF 8 BOTTLES





NO DEPOSIT, NO RETURN





PROS AND CONS FOR DIFFERENT COLLECTION SYSTEMS - QUESTIONS

- What's the problem?
 - Littering or/and resources
- What's the collection rate?
 - How to achieve highest possible collection rates?
- What's the yield in collection and recycling process?
 - How to achieve the highest environmental effect
- What's the cost per unit for the producer/consumer?
(extended producer responsibility cost)
 - How to achieve the lowest pr unite?



INFINITUM NORWEGIAN REGULATIONS AND MARKET

100% collection and high-grade recycling

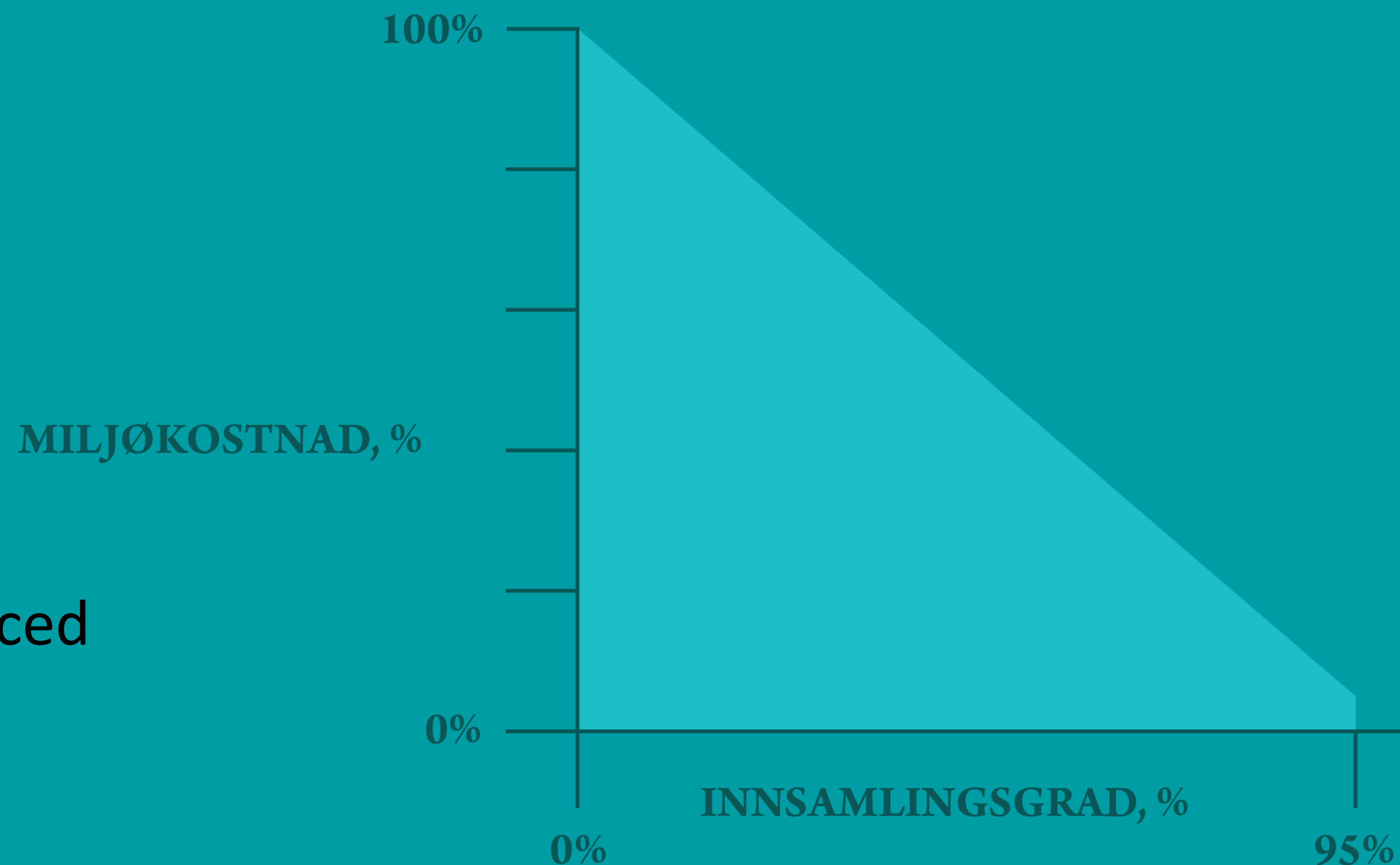


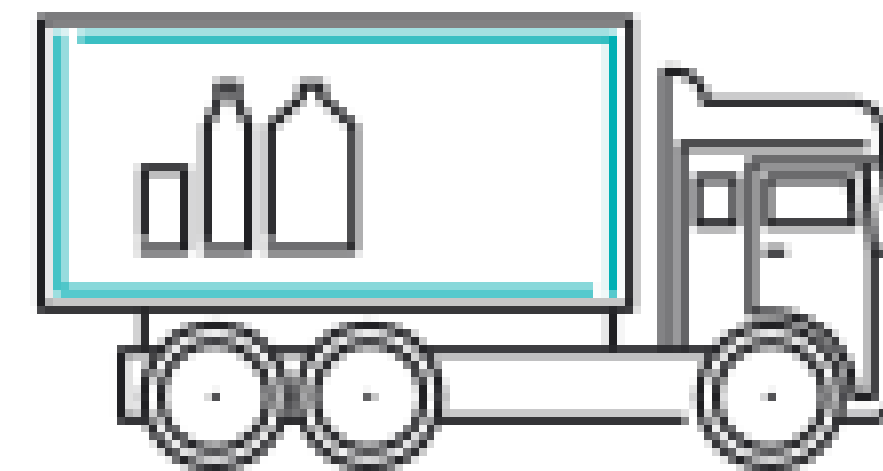
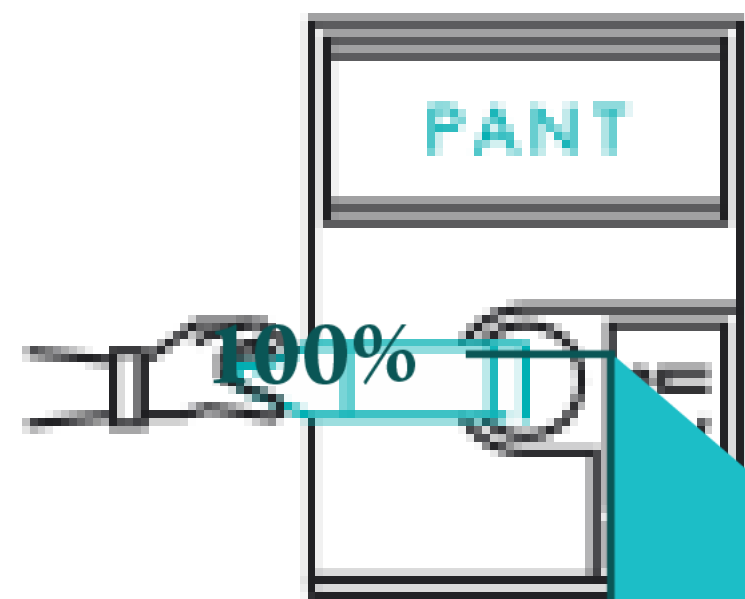
HOW GIVE MANUFACTURERS AN EFFECTIVE INCENTIVE TO SOLVE THE LITTERING PROBLEM

ENVIRONMENTAL COST

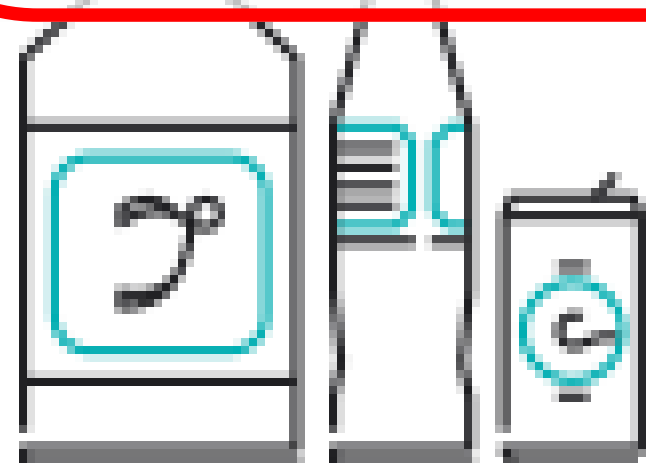
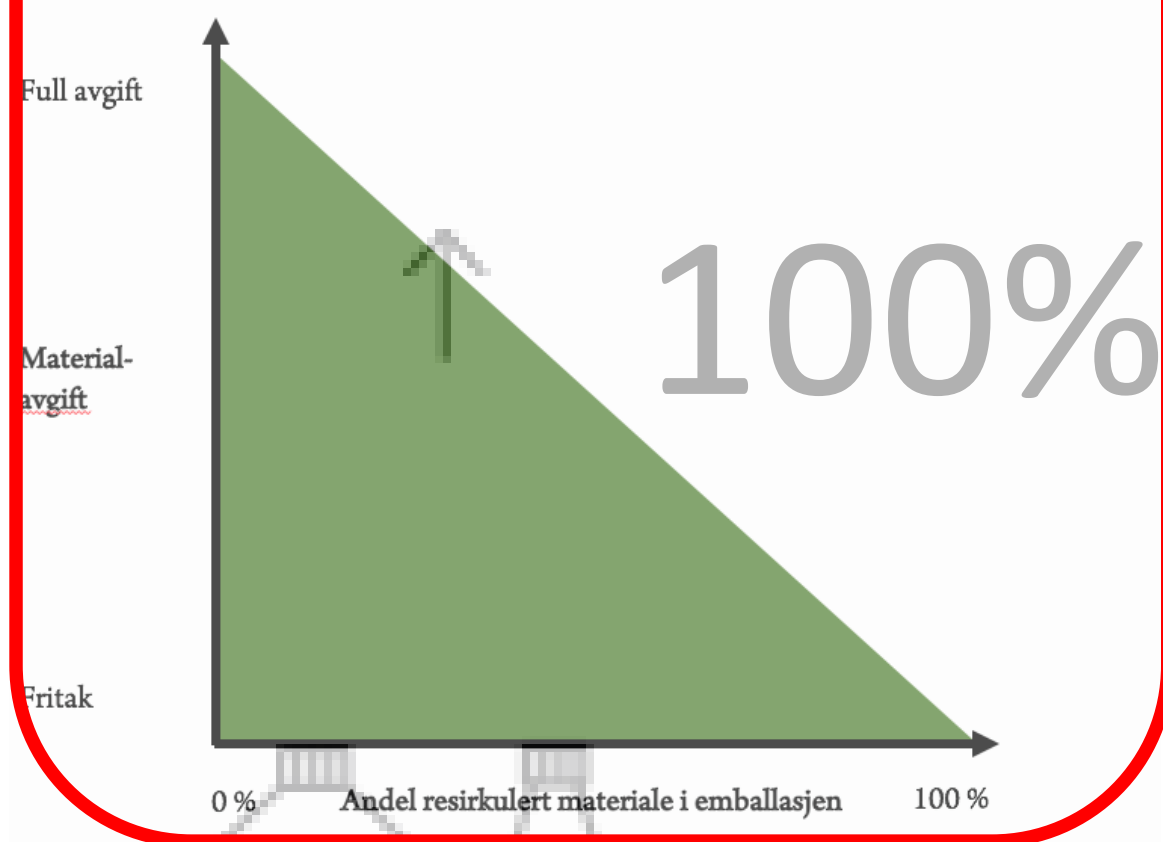
- Anti litter fee!

- The environmental fee is reduced with increasing collection rate
- Cans: kr. 5,88 - 0,61 EUR - 35 000,-/ton
- Bottles: kr. 3,55 - 0,37 EUR - 10 000,-/ton

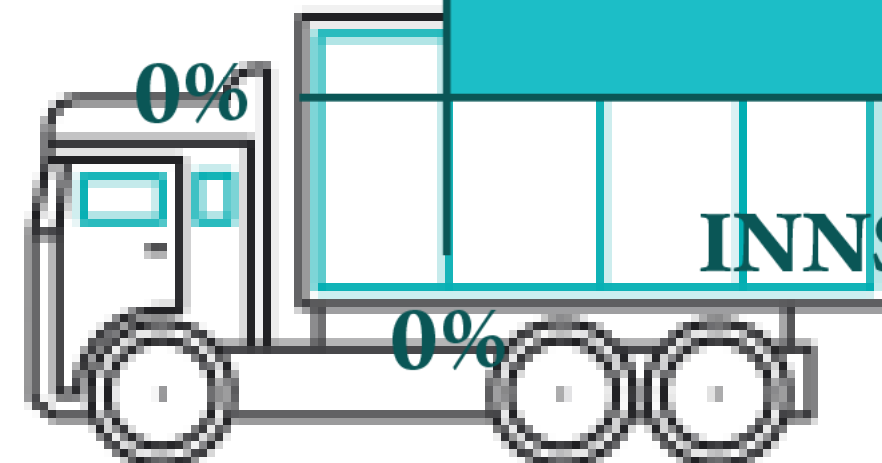
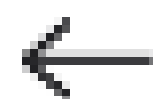




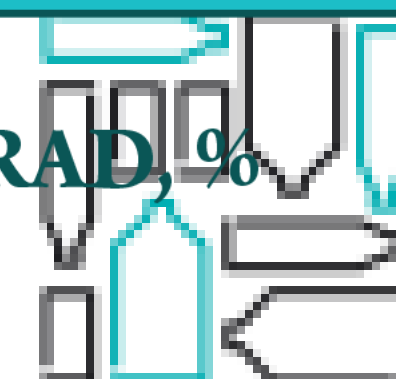
Materialavgift: Andel resirkulert materiale i emballasjen



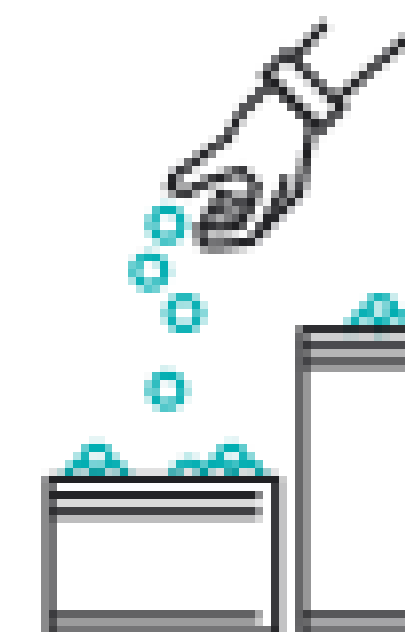
High grade recycling



Transport



Sorting and bailing



Transport

100% PRODUCTION RESPONSIBILITY



INNSAMLINGSGRAD, %

95%

0%

0%



COLLECTION OF BEVERAGE CONTAINERS IN NORWAY



Curbside, one way glass and metal



Reusable Packaging
(breweries and beverage association)



Plastic packaging, packaging cardboard
and beverage cartons

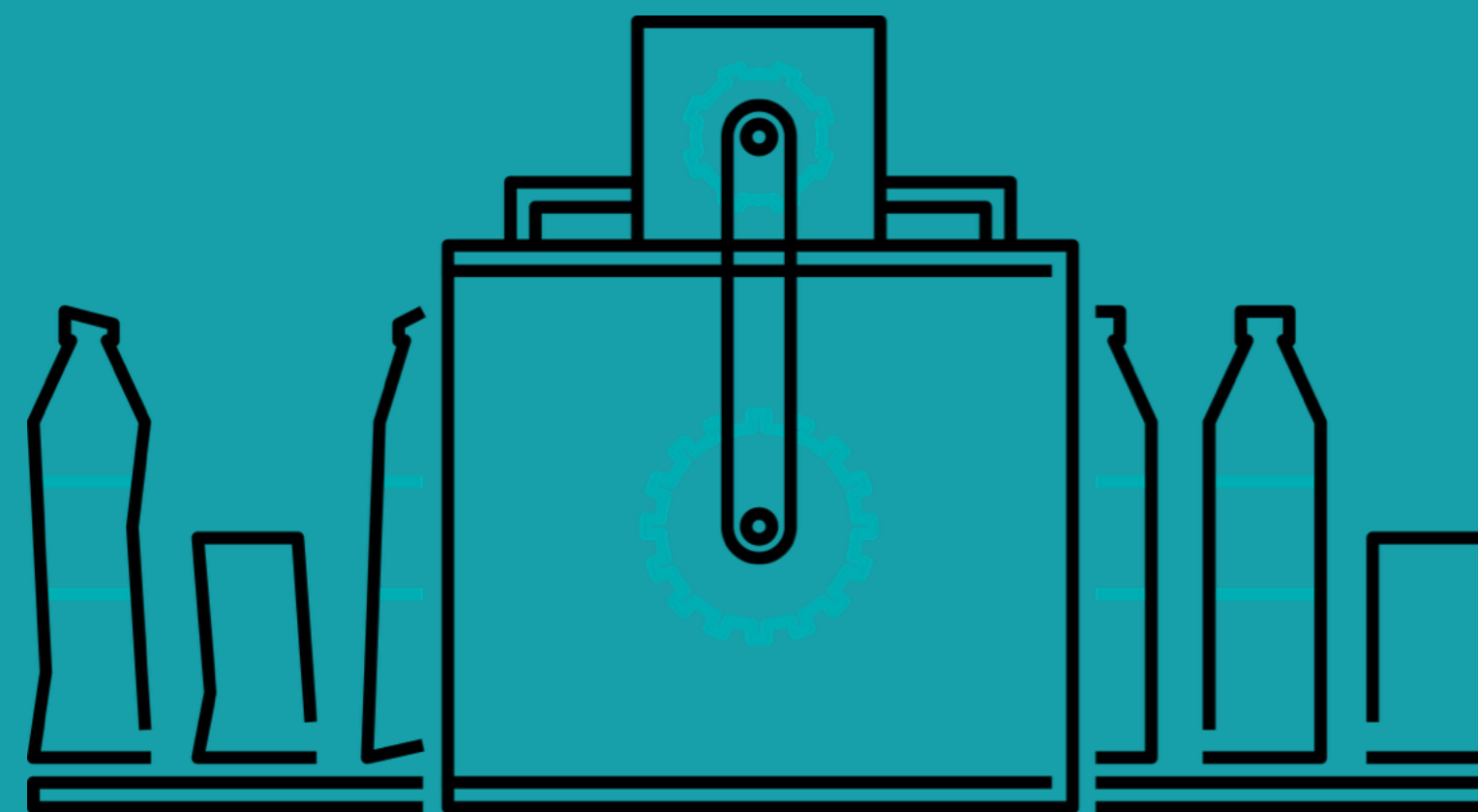
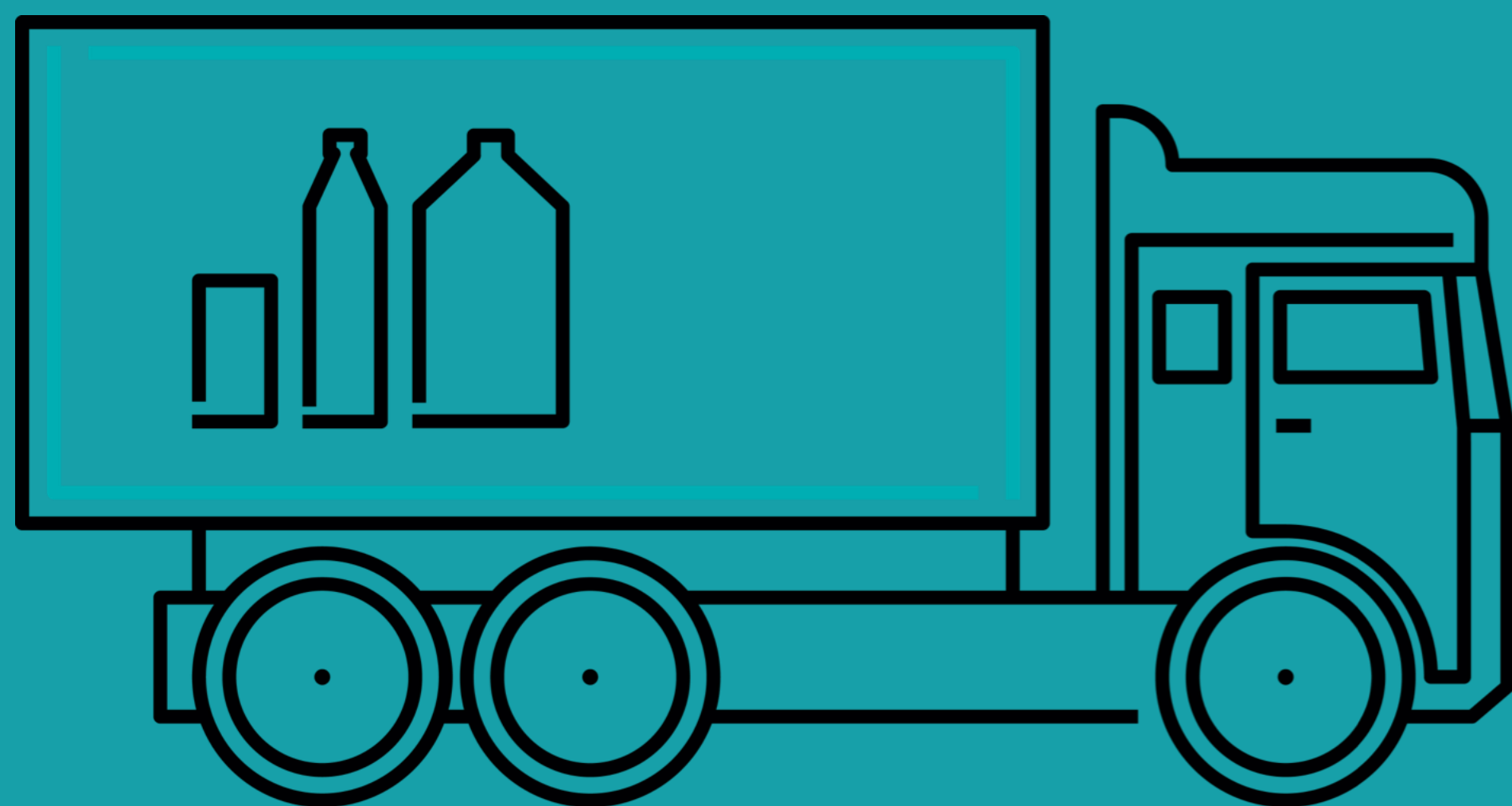


Deposit systemet





LOGISTICS AND PRODUCTION





PRODUCTION FACILITIES





EFFICIENT LOGISTICS

94% collected through 3 700
RVM in grocery stores
1,5 mill bags



6 % from 11 300 pick up
points without RVM
400 000 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!



ON THE GO



EDVARD MUNCH VGS

Edvard Munch vgs
@edvardmunchvgs

Startside

Anmeldelser

Bilder

Videoer

Innlegg

Arrangementer

Om

Samfunn

Informasjon og annonser

Opprett en side

Likt Følger Del

Edvard Munch vgs

6. september kl. 12:56

Første helt konkrete ledd i arbeidet med å bli grønn skole kom i dag. Resirkulerte oljetønner til pant plasseres i kantina og ved hovedtrapp ned til resepsjonen - i alle etasjer. Bruk dem flittig! #edvardmunchvgs #grønnskole

124 4 kommentarer 2 delinger

Liker Kommenter Del

Mest relevante

Skriv en kommentar ...

Niklas Lüder bra! Infinitum Movement

Liker · Svar · 6 d

Sarasvati Flygel Jeg tok et gledesjøpp i trappa da jeg så den første tønn!

Liker · Svar · 6 d

Karin Madse Kult!

Liker · Svar · 6 d



KEY FIGURES



KEY FIGURES 2018

Supply chain	Cans	Tonnes	% added	PET	Tonnes	% added
Total sales	614 503 691	9 525		622 628 246	22 477	
Supply chain storage	-12 100 000	-188		-800 000	-66	
Added (Sales + supply chain storage)	602 403 691	9 337	100%	621 828 246	22 412	100%
Total returned via reverse vending machines	508 096 599	7 875	87,4 %	535 687 113	19 679	88,8 % %
Via centralised sorting	7 245 399	112	1,2%	1 008 428	37	0,2%
Via slag sorting	53 355 898	827	8,9%			
Via materials sorted at source	7 528 793	116,7	1,2%	1 507 612	55	0,2%
Energy recovery	11 535 377	178,8	1,9%	53 138 582	1 929	8,6%
Total recycled from waste	79 665 467	1 235	13,2%	55 654 621	2 020	9,0%
Total recycled	587 762 066	9 110	97,6%	591 341 734	21 699	96,8%
Bottom ash residues	11 357 138	176	1,9%			
Loss on energy recovery	2 191 631	34,0	0,4%	10 016 399	364	1,6%
Unknown disposal	1 092 856	16,9	0,2%	20 470 113	349	1,6%
Total not returned	94 307 092	1 462	15,7%	86 141 133	2 733	12,2%
Total	602 403 691	9 337	100%	621 828 246	22 412	100%
Foreign units	28 084 111			4 732 225		



REPORTING OF TONNAGE



Vekt:
195,6 gram



Vekt:
81 gram



Vekt:
52,3gram

274 % tyngre





EPR COST PRODUCER/IMPORTER

01.10.2018	Aluminium	Steel	PET	HDPE
Basis EPR	-NOK 0,08	NOK 0,21	NOK 0,10	NOK 0,10
Standard kode	NOK 0,06	NOK 0,06	NOK 0,06	NOK 0,06
Light blue			NOK 0,08	NOK 0,08
Colored or sleeve > 75 %			NOK 0,15	NOK 0,15
Sleeve eller label	NOK 0,03	NOK 0,03		



Administrative fee

- The problem of acceptance of packaging for which the corresponding amount of (national) deposit and/or administrative fee have not been paid (*free riding*).
- Compared to the other six countries, Croatia has a lower cost of placing PET and glass packaging on the market (paid as an administrative fee) than Finland, Lithuania, and Germany and Sweden (in these two countries only for PET since glass packaging is not included in the deposit system in Sweden), and the higher put to market fee for cans compared to Norway, Finland, Sweden and Estonia.

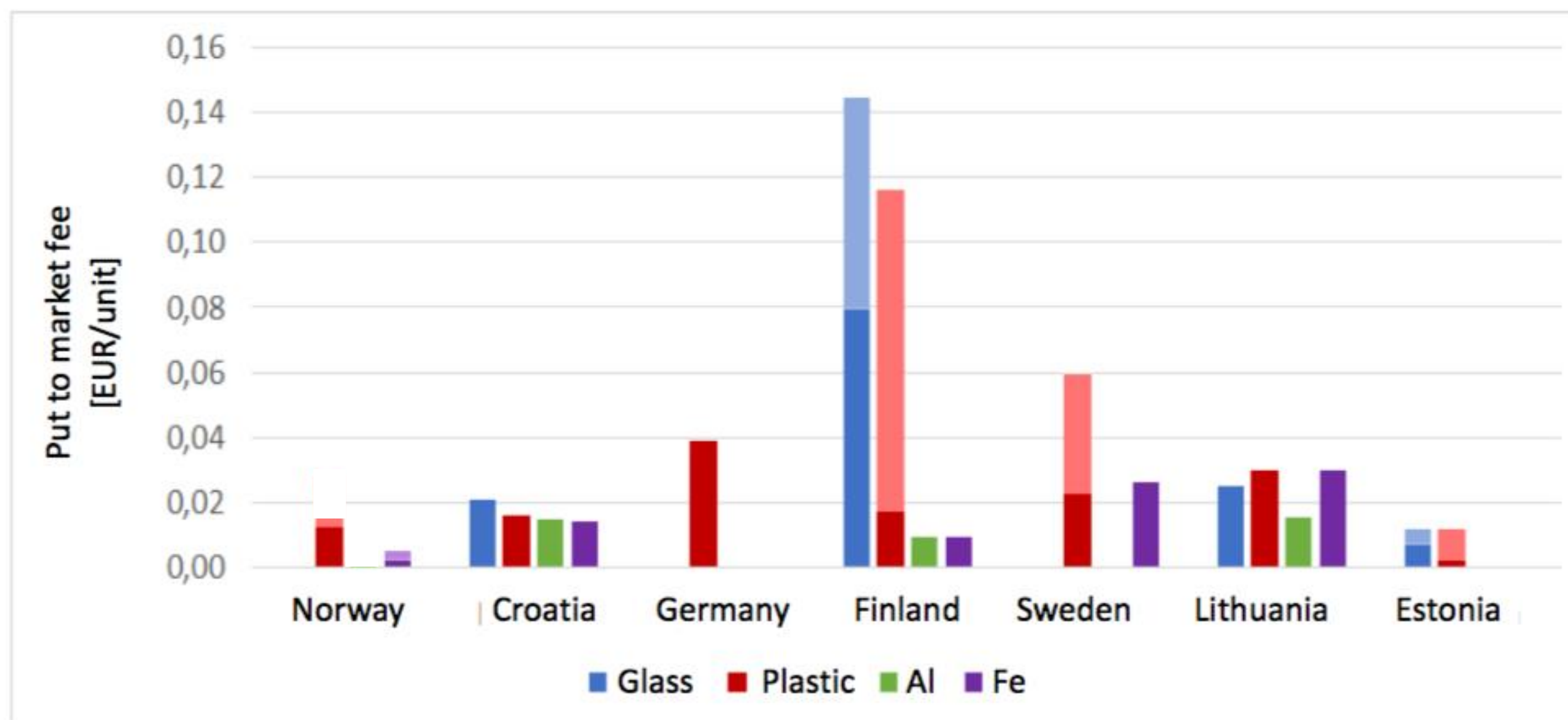


Figure 7. Put to market fees in deposit systems (EUR/unit)

The darker hue on the graph indicates the minimum fee (for national barcodes) and lighter hue for international barcodes (which also includes differences in administrative costs related to material and volume of packaging as well as sorting costs).

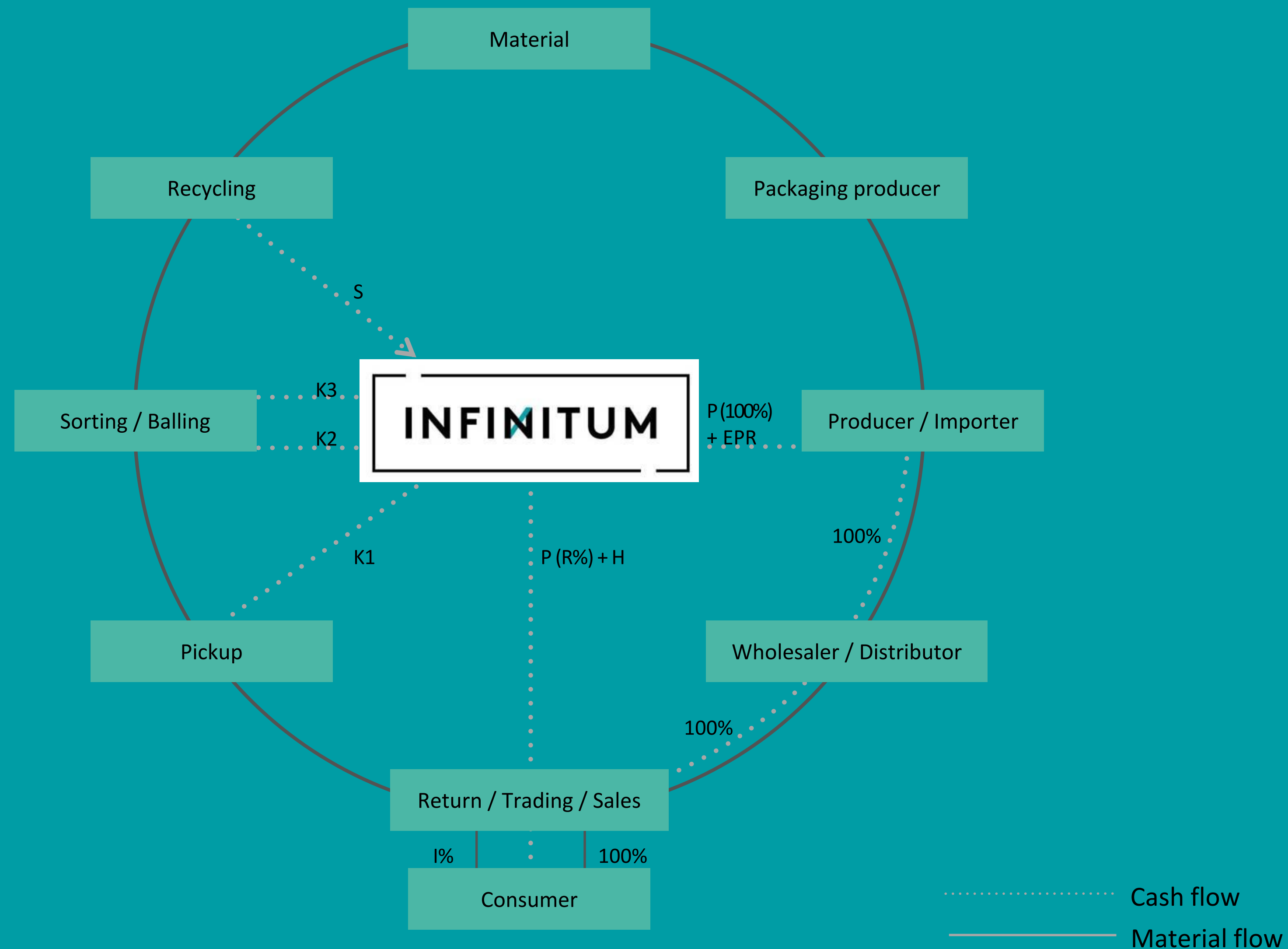


HANDLING FEE

01.02.2016	can aluminium	Bottles PET	Bottles HDPE
RVM with compaction	NOK 0,20	NOK 0,25	NOK 0,25
RVM without compression and manual receiving	NOK 0,05	NOK 0,10	NOK 0,10



MATERIAL- AND CASH FLOWS



P: Deposit
EPR: Epr. fee (pr. unit)
H: Handling fee
K1: Purchase of pick-up service
K2: Cost of handling and bailing
K3: Purchase of transport to recycle
S: Sales of collected material
I% The collection rate

Unredeemed deposit accrues to Infinitum



PLASTIC IN A DRS GIVES THE LOWEST CARBON FOOTPRINT AND HIGHEST REUSE CAPABILITY

100% collection and high-grade recycling

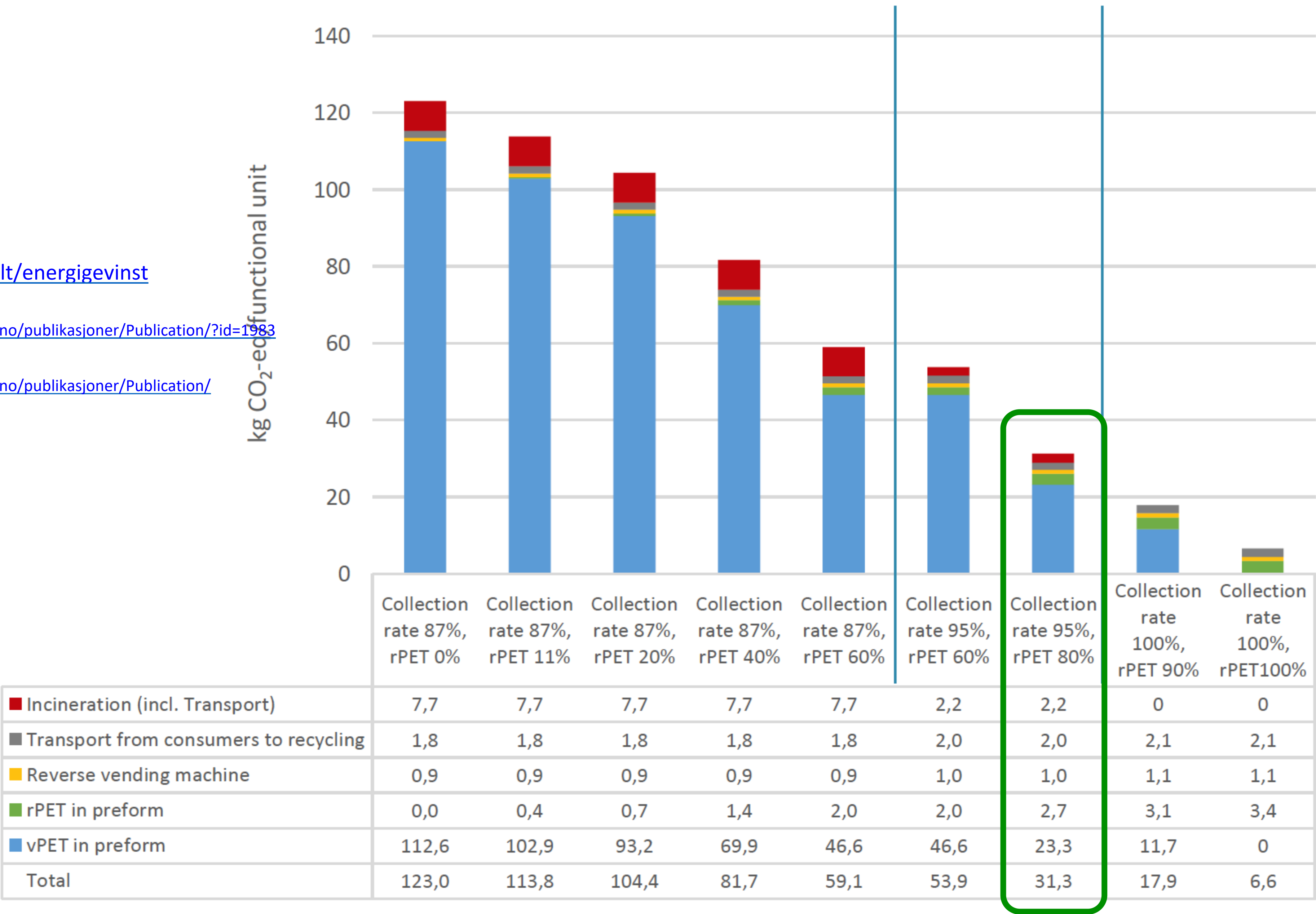




<http://infinitum.no/aktuelt/energigevinst>

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

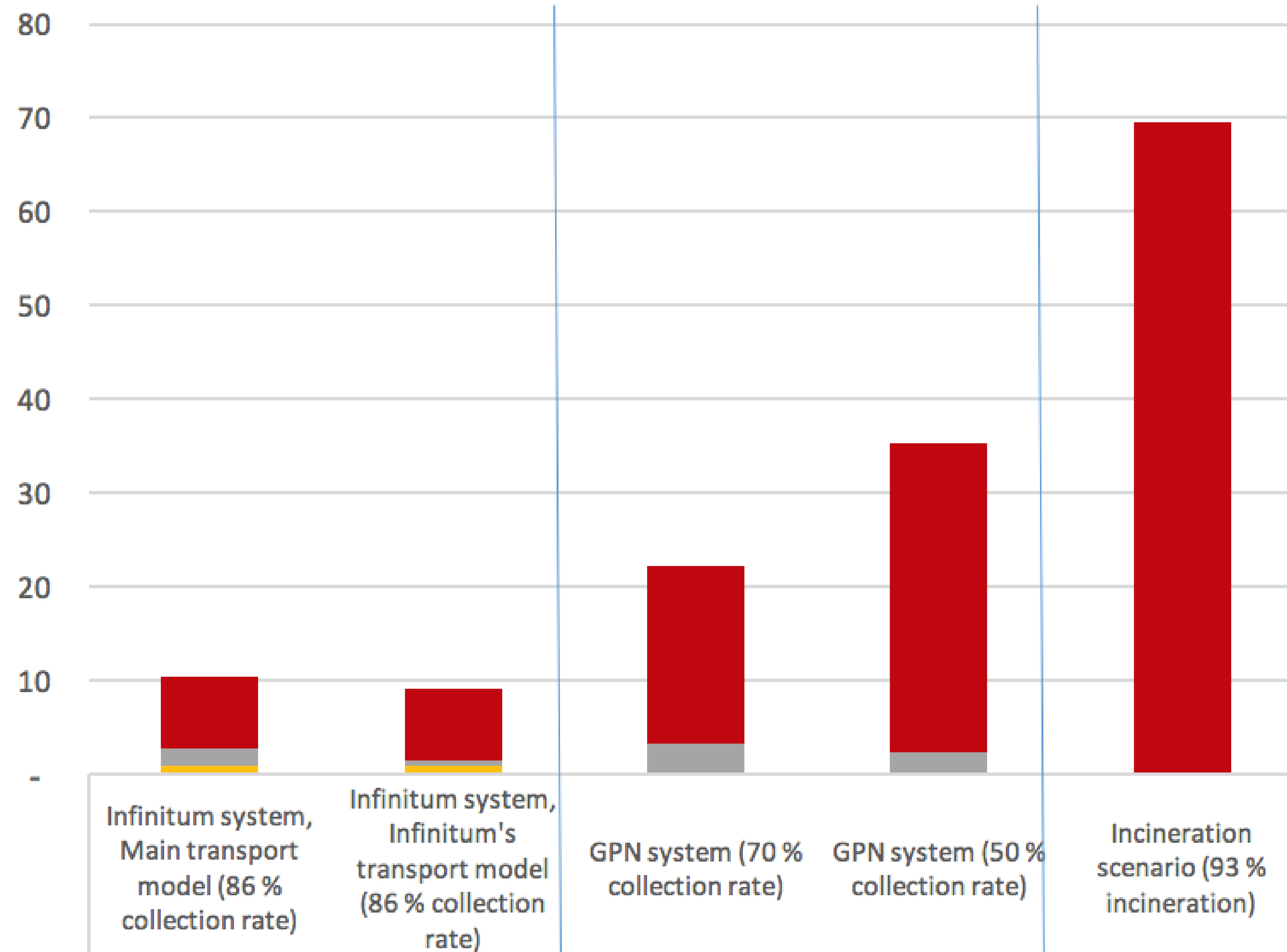
<https://www.ostfoldforskning.no/no/publikasjoner/Publication/?id=2031>



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



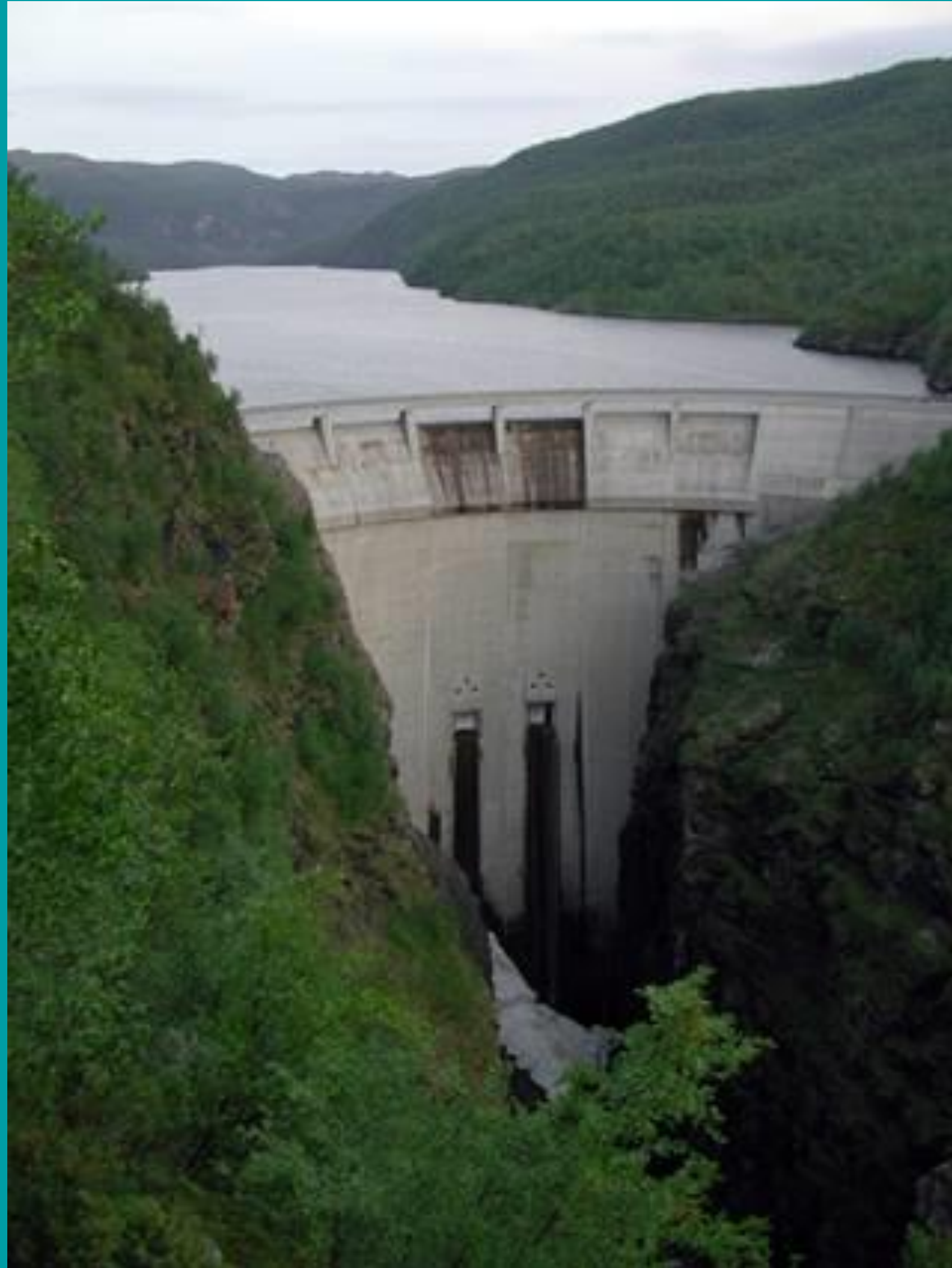
kg CO₂-eq/functional unit



■ 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



GLASS BOTTLES VS PET AND CANS



Annual saving of 2 640 GWh when using Bottles and Cans instead of glass bottles!



CO₂ EMISSION FOR BEVERAGE

1000 L

Vinmonopolet:

Glass bottles (0,75L): 875 kg

Bag-in-box (3L): 159 kg

Carton (1L): 138 kg

PET with deposit:

0% recycled PET (1 L): 123 kg

100% recycled PET (1 L): 6,6 kg

Cans with deposit:

100% recycled alu (0,45 L): 100,8 kg

20% recycled alu (0,45 L): 800,4 kg



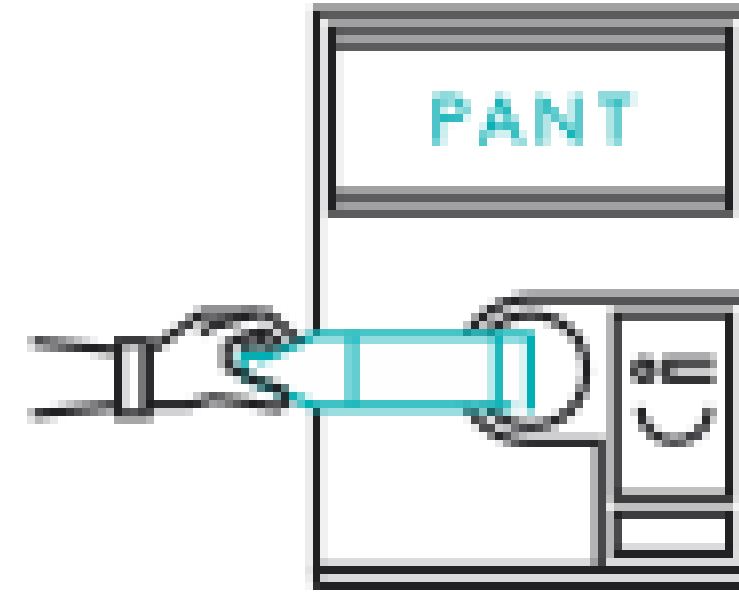
THE “NORWEGIAN MODEL”

- Voluntarily for the producers/importers
- Environmental cost model
- Return to all points of sale of packaging included in the deposit scheme
- All points of sale have a duty to accept reasonable quantities of the empty packaging
- Deposit without VAT
- At the point of sales, the product is labeled with product price plus deposit
- Infinitum cover all costs
- The shops decides if to invest in RVM
- Infinitum is responsibility for the yearly reporting of deposit rate
- Infinitum is responsibility for the yearly reporting of total collection rate
- Infinitum can decide extension and development of the system

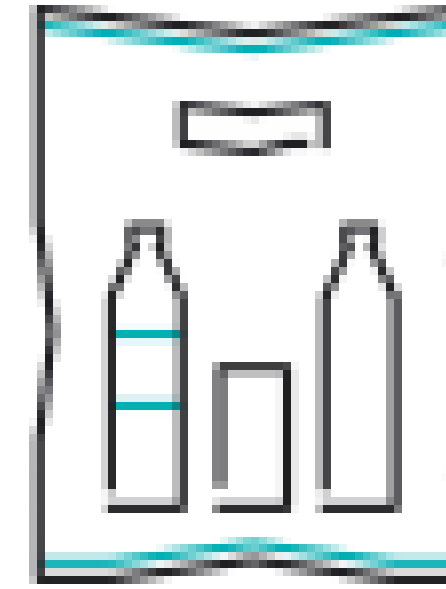




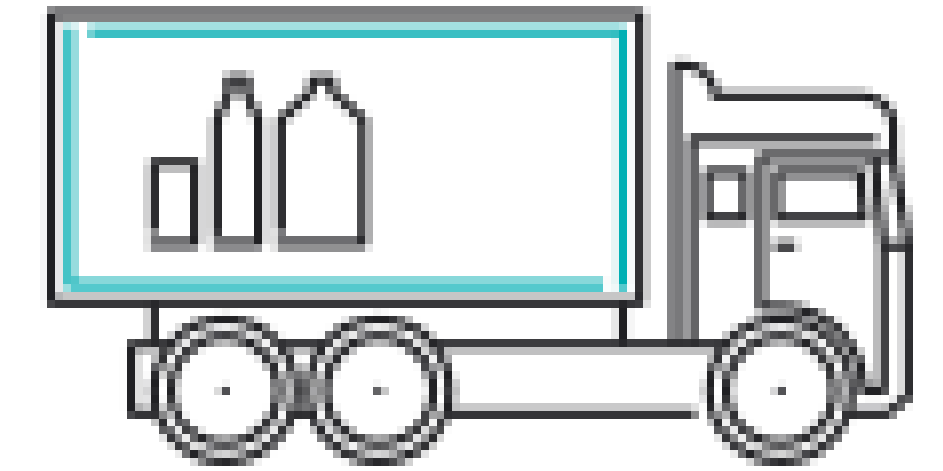
Happiness



Pant



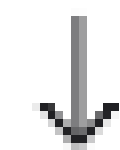
Preparation



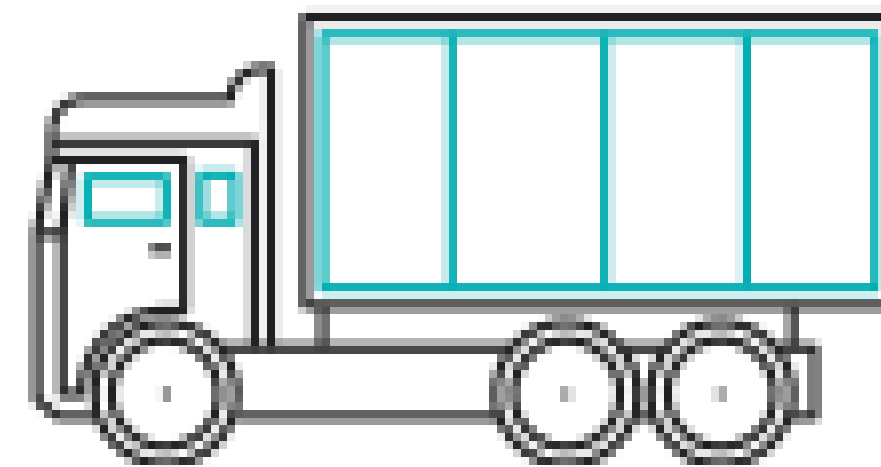
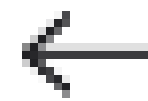
Pick up



INFINITUM



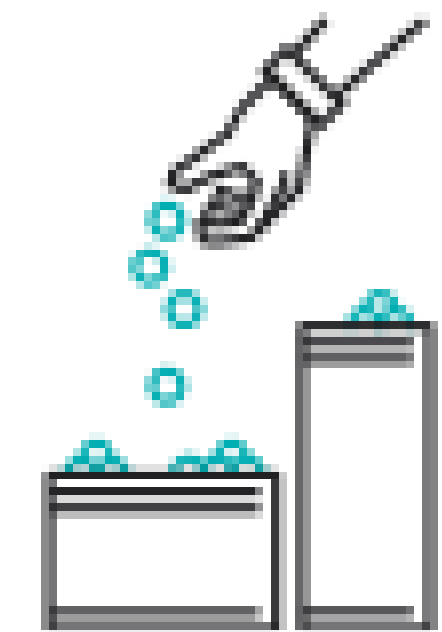
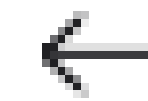
High grade recycling



Transport



Sorting and bailing



Transport