

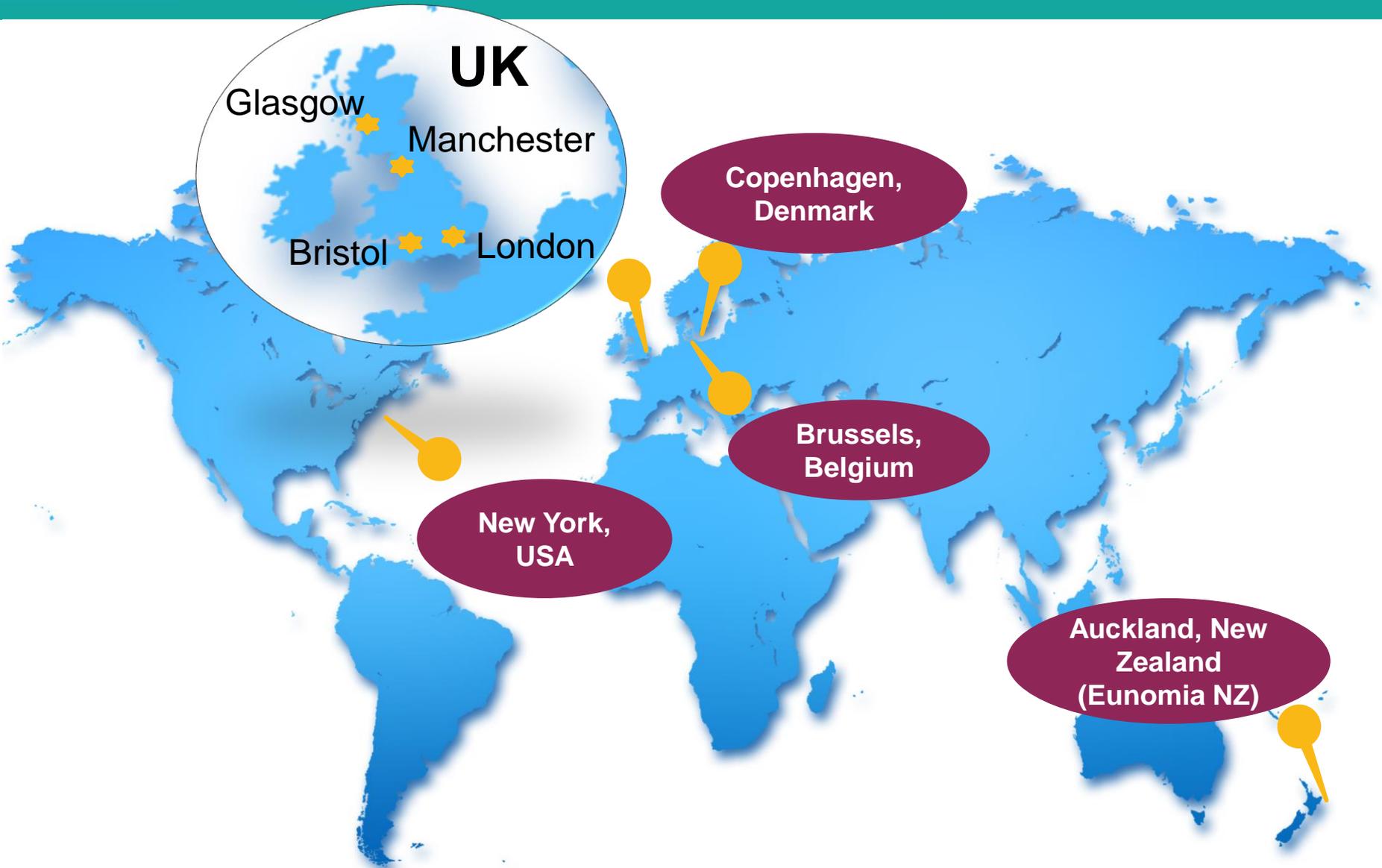
A Deposit Refund System for the Czech Republic

Analysis of Costs and Impacts

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Eunomia Research & Consulting

About Eunomia



Global DRS Expertise

Modernising
Québec's DRS

Implementing the
Scottish DRS

Potential
impact on litter
and
municipalities

Options
review for
packaging
industry

Alberta Key
Performance
Indicators

The potential
for an EU-wide
DRS

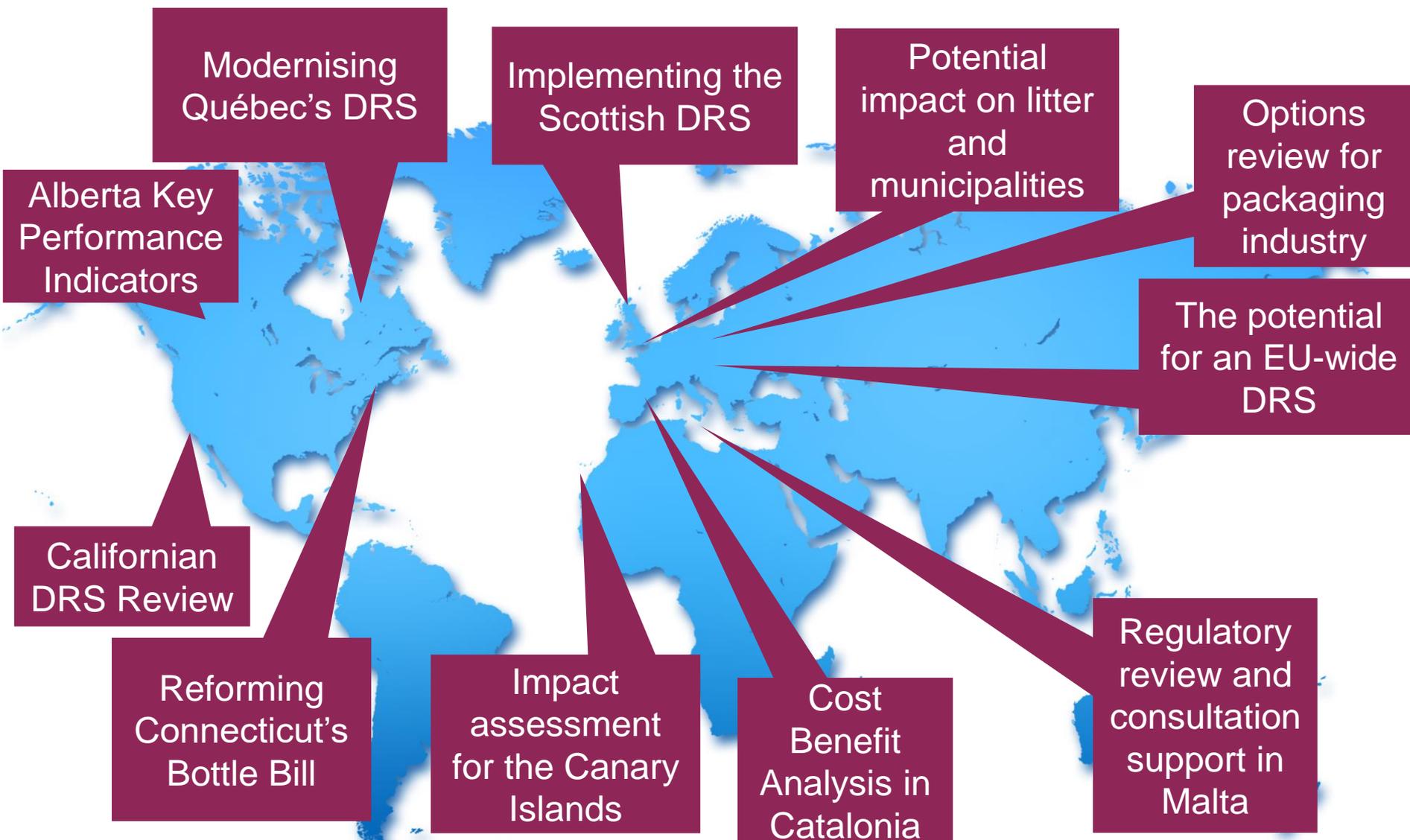
Californian
DRS Review

Reforming
Connecticut's
Bottle Bill

Impact
assessment
for the Canary
Islands

Cost
Benefit
Analysis in
Catalonia

Regulatory
review and
consultation
support in
Malta



Our Role



Independent consultancy dedicated to helping our clients to achieve better environmental and commercial outcomes.

- **Design DRS for Czech Republic**
 - Based on global best practice
- **Analysis of costs & impacts**
 - System costs & revenues
 - Stakeholder impacts
 - Collection savings
 - Environmental benefits

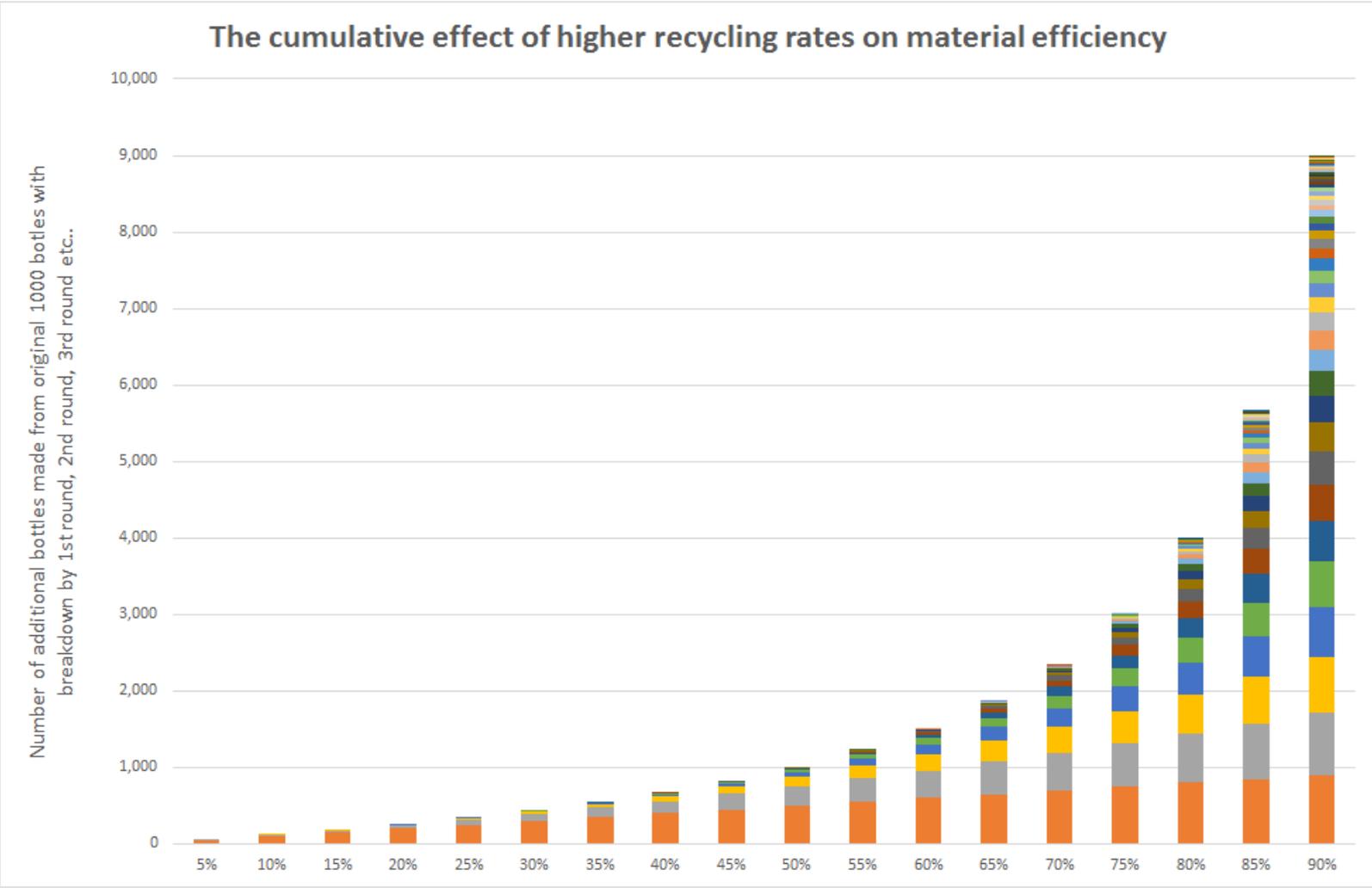
What is a DRS?

What is a Deposit Return System?

- **Extended Producer Responsibility**
- **Refundable deposit incentivises consumers to recycle**
- **Aims:**
 - **Increase recycling**
 - **Reduce litter**



Material Efficiency

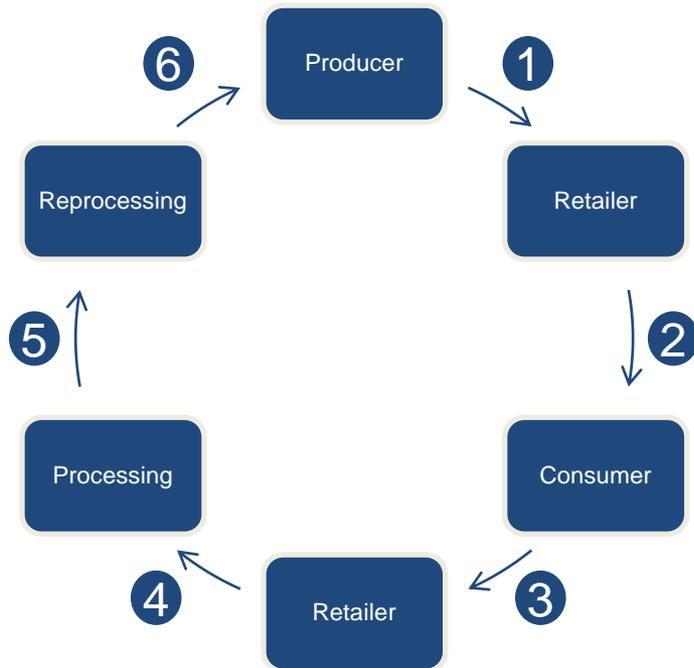


Tackling Litter

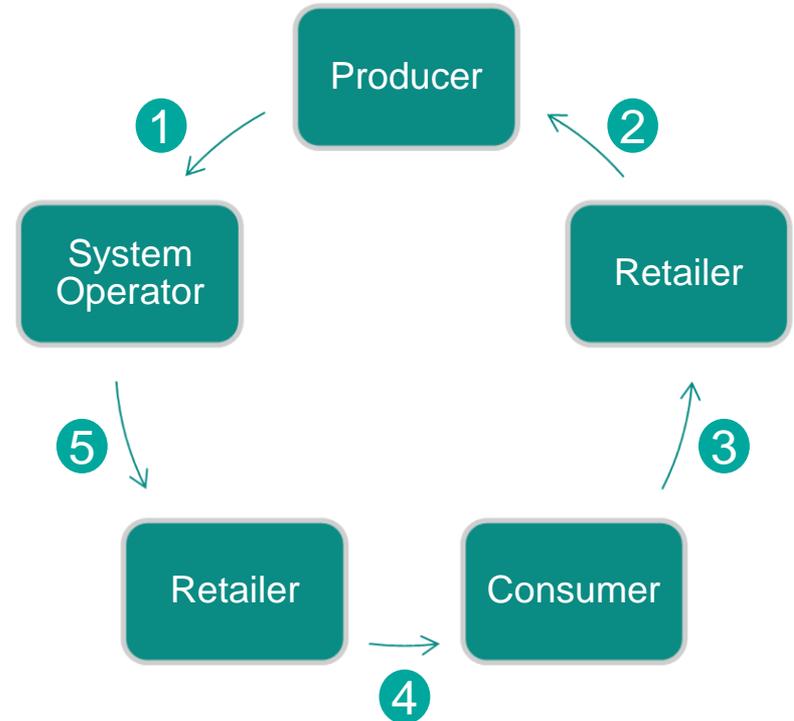
- **Evidence suggests a 90% decrease in littering of deposit bearing containers**
- **Significant:**
 - **Environmental benefits**
 - **Financial benefits**
 - **Plastic bottles will face costs of litter clean up under Article 8 SUPD**

How does it work?

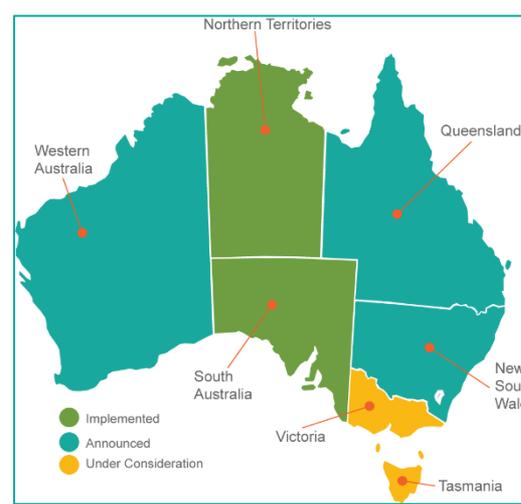
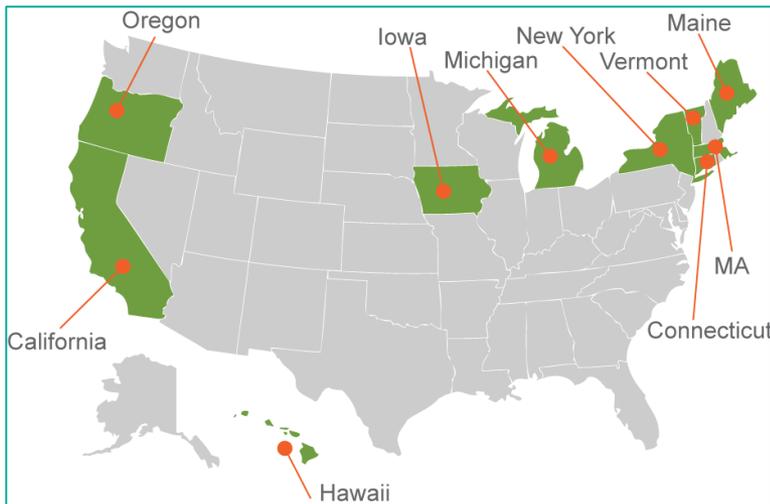
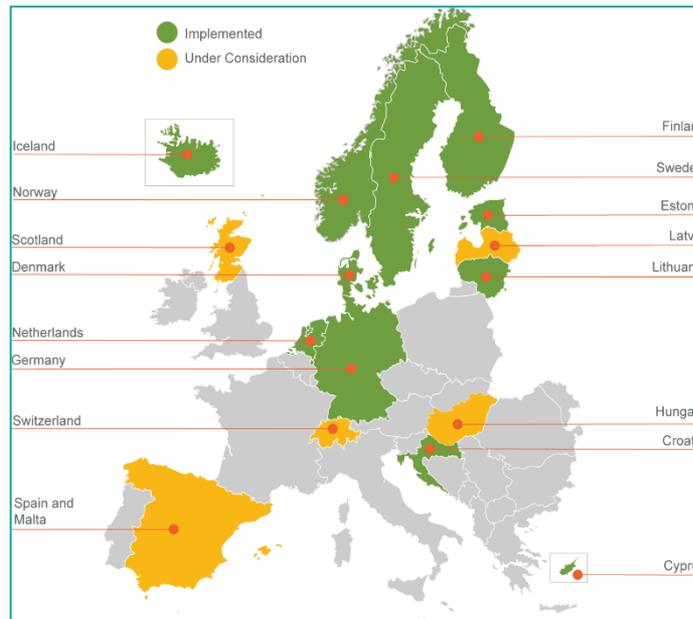
- **Material Flow**



- **Deposit Flow**



Where else has a deposit system?



DRS Design

Overview

- **Centralized**
- **Producer-owned**
- **Not for profit**
- **90% target**



Scope

- **Beverage containers:**
 - Scenario 1: PET
 - Scenario 2: PET & Metal cans

- **Beverage Type:**
 - Water
 - Soft drinks
 - Juices
 - Beer & cider

Scope - Beverage Type

Included



Excluded

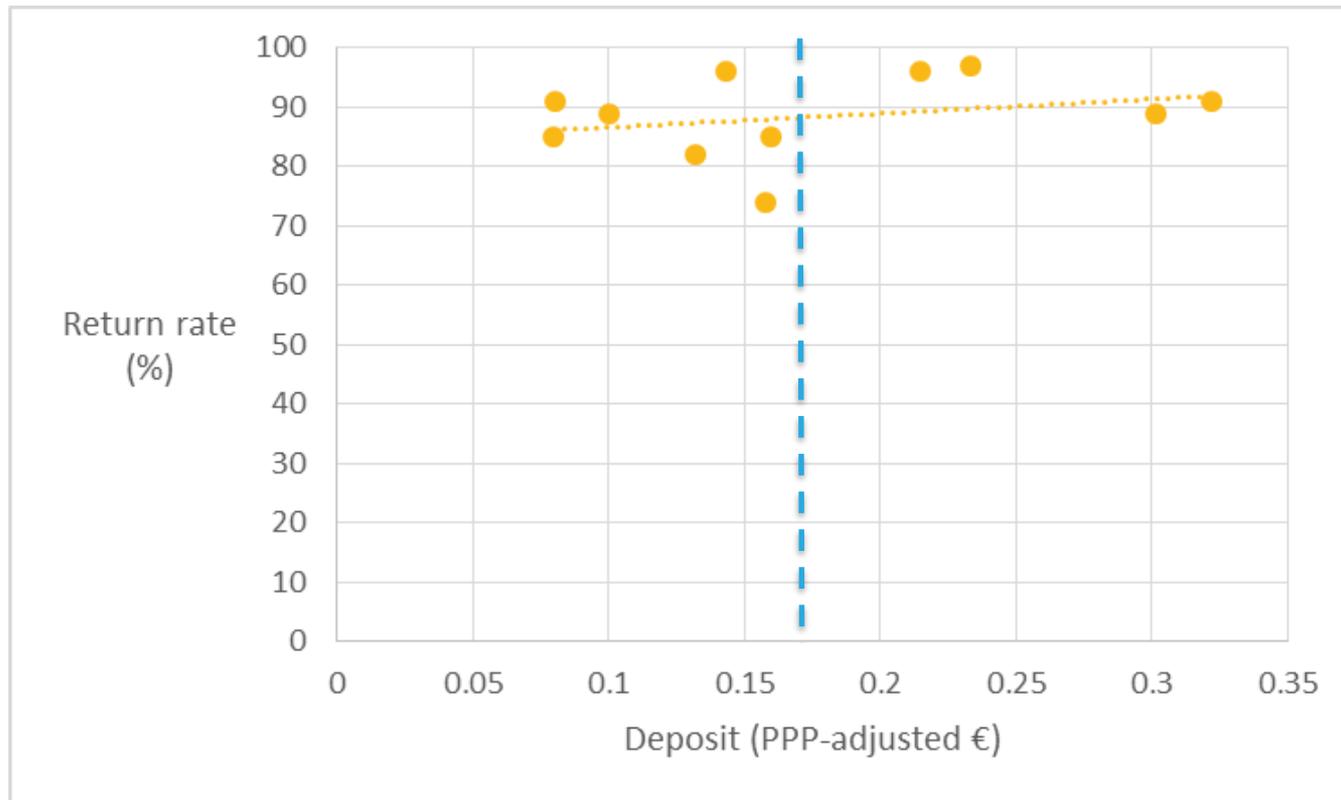


Deposit Level

- **Balance return incentive with fraud incentive**
- **Clarity and simplicity for stakeholders**
- **Recommendation:**
 - **3 Czk (€0.12)**

	Deposit	Deposit in Euro	PPP- adjusted Euro	Return Rate
Denmark	1 – 3 DKK	0.13 – 0.40	0.10 – 0.30	89%
Estonia	€0.10	0.10	0.13	82%
Finland	€0.10 - €0.40	0.10 – 0.40	0.08 – 0.32	91%
Germany	€0.25	0.25	0.23	97%
Lithuania	€0.10	0.10	0.16	74%
Norway	NOK 2 – 3	0.21 – 0.32	0.14 – 0.21	96%
Sweden	SEK 1 - 2	0.10 – 0.19	0.08 – 0.16	85%
Czech Republic	3 CZK	0.12	0.17	

European Deposits



Return Infrastructure

- **Return to Retail**
 - All containers returned together
 - Convenient
 - Manual/ automated choice



- **Redemption Centre**
 - No retailer involvement
 - Less convenient
 - Special infrastructure

Handling Fees

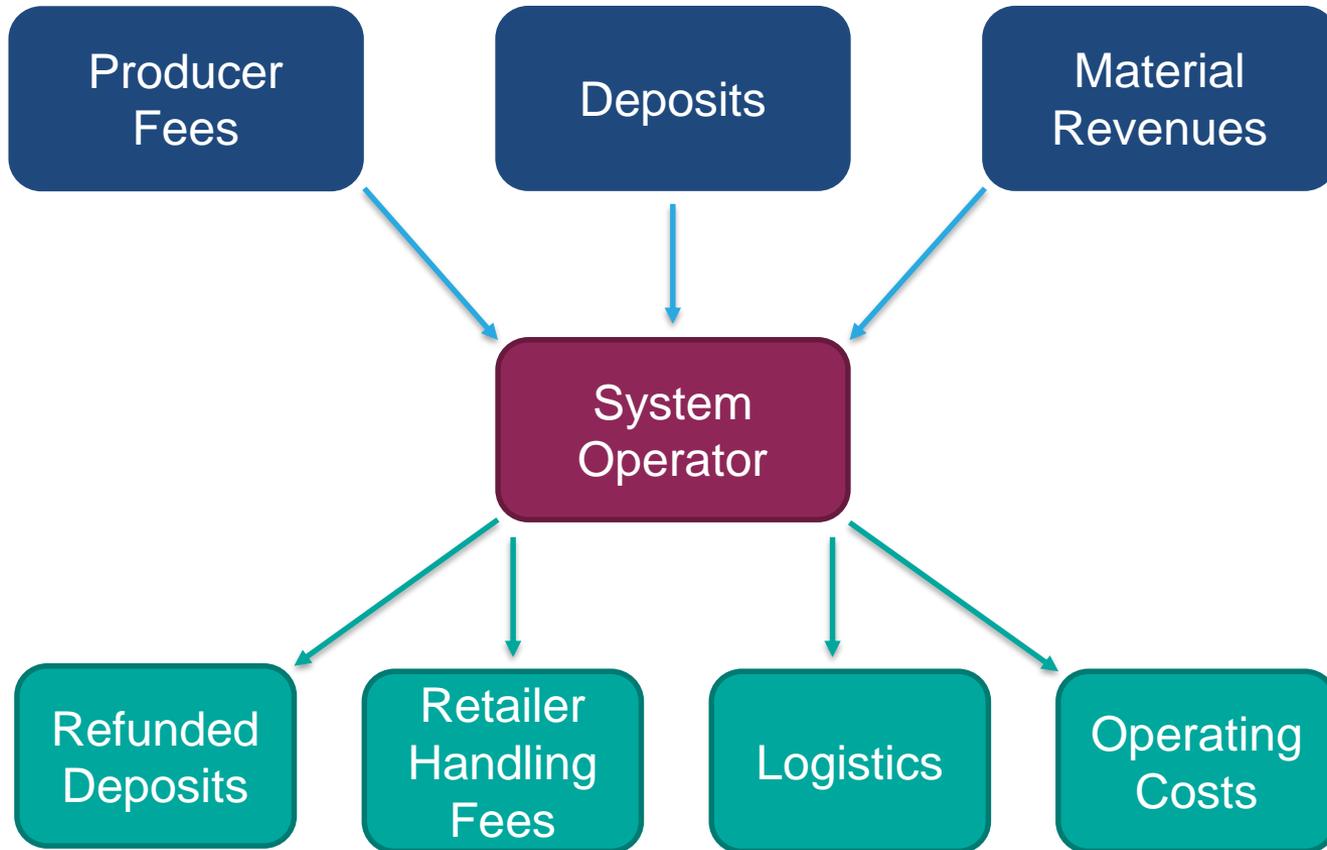
- **Compensate retailers for costs**
- **System operator reimburses deposit and pays handling fee to retailer for every returned container**
- **Higher fee for reverse vending machines**
 - **Higher costs for retailers**
 - **Efficiency savings for system operator**

Fraud Prevention & Labelling

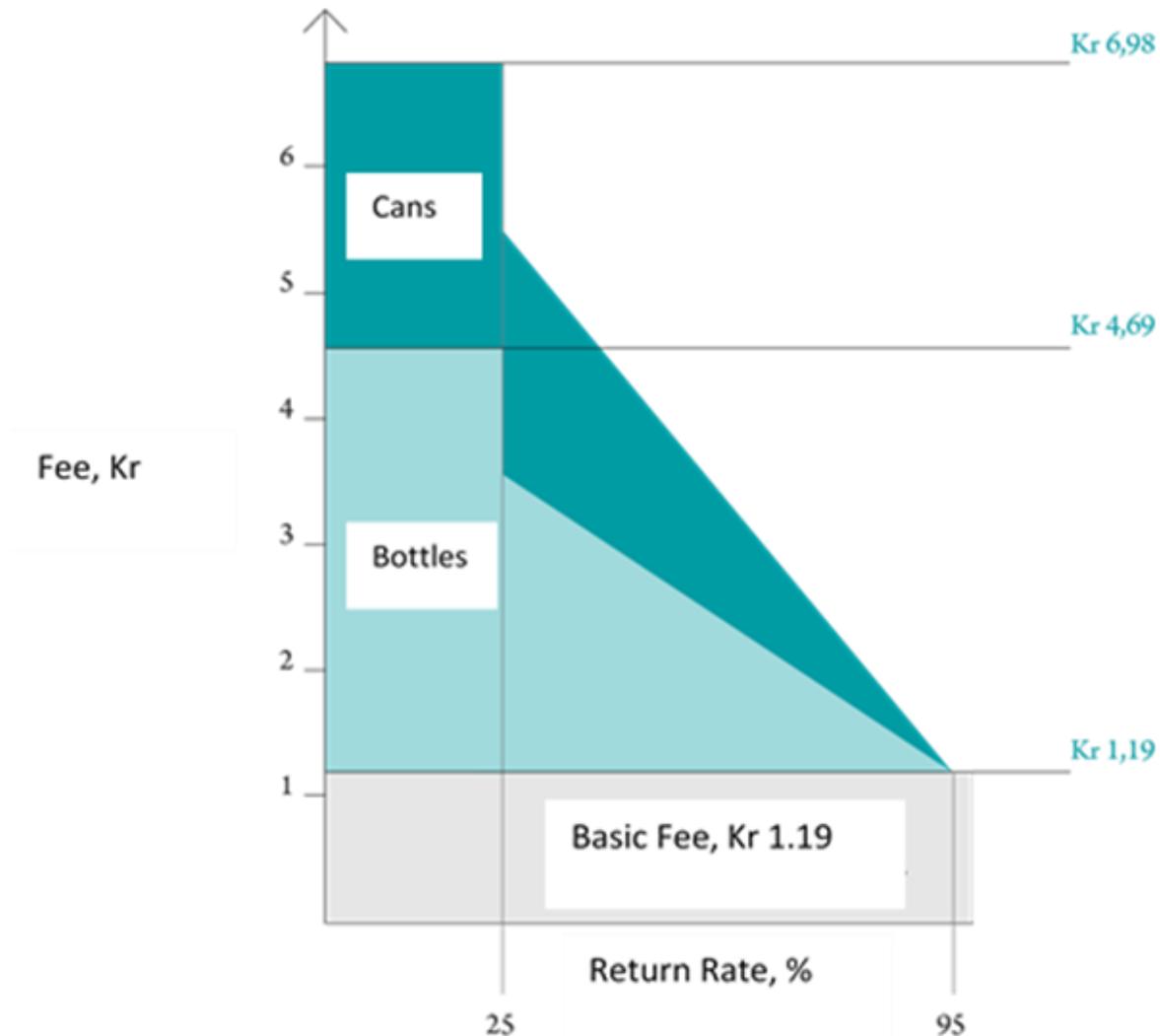
- **Deposit logo to indicate deposit to consumers & retailers**
- **Compacting RVMs**
- **Unique barcodes, specific to Czech Republic**
 - **Scanned by RVMs**
 - **Used by system operator to monitor sales and returns**



System Funding



Supporting Policy Instruments



Assessment of Costs and Impacts

Modelling Overview

Baseline Analysis

Existing waste flows

Container Collection Costs

Bulking, haulage & sorting costs

Disposal Costs

Material Revenues

DRS Costs

DRS waste flows

Set-up costs

Retailer Costs

Collection & Transport Costs

Counting & Bulking Costs

System Operator Admin Costs

Producer Fees

DRS Costs

Material Revenues

Unredeemed Deposits

Retailer Handling Fees

Manual

Staff time to scan
& take-back
container

Storage space for
uncompacted
containers

Staff time to assist
pick-ups

RVM

RVM purchase/
hire costs

RVM operational
costs

Retail space for
RVM

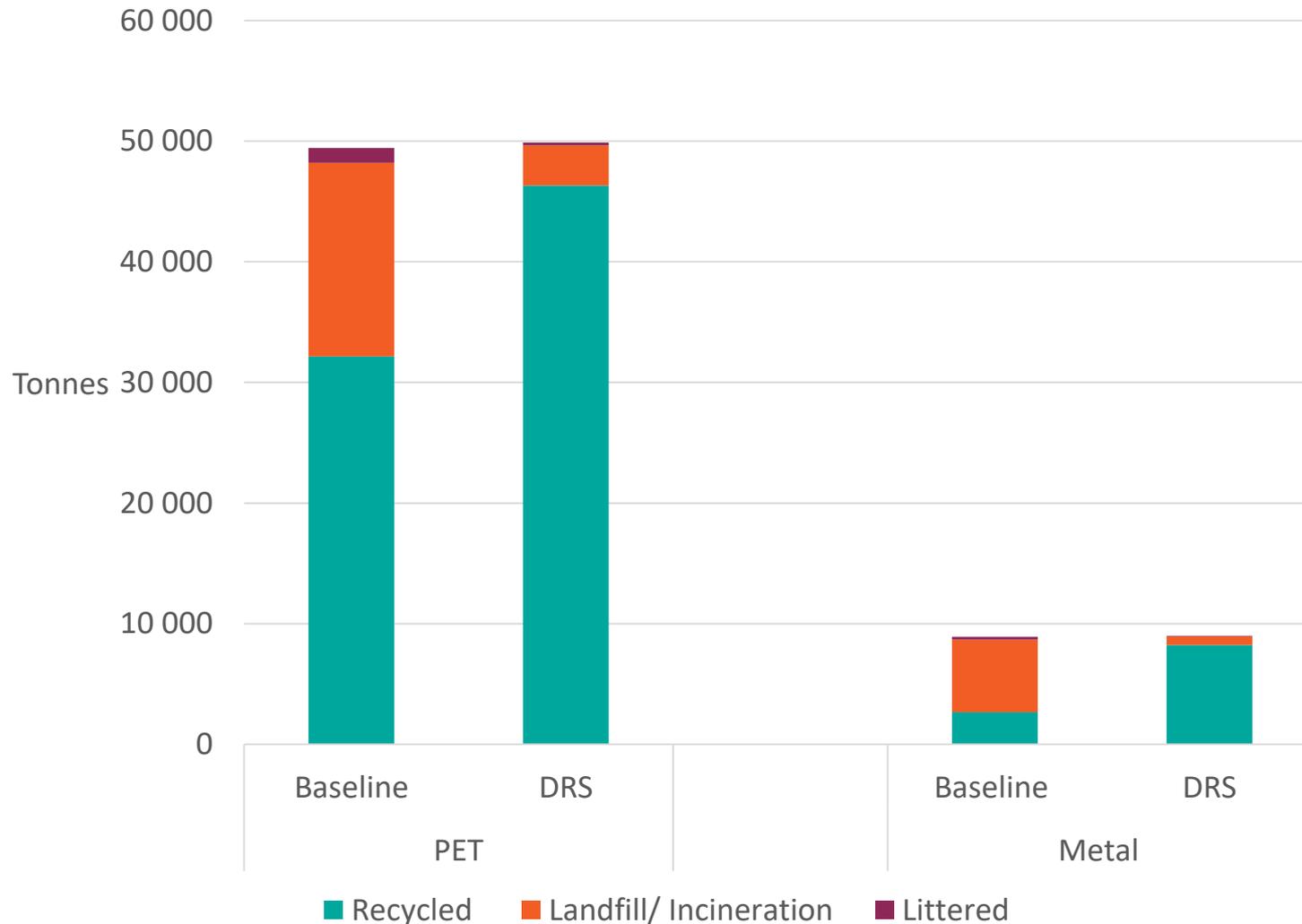
Storage space for
compacted
containers

Staff time to assist
pick-ups

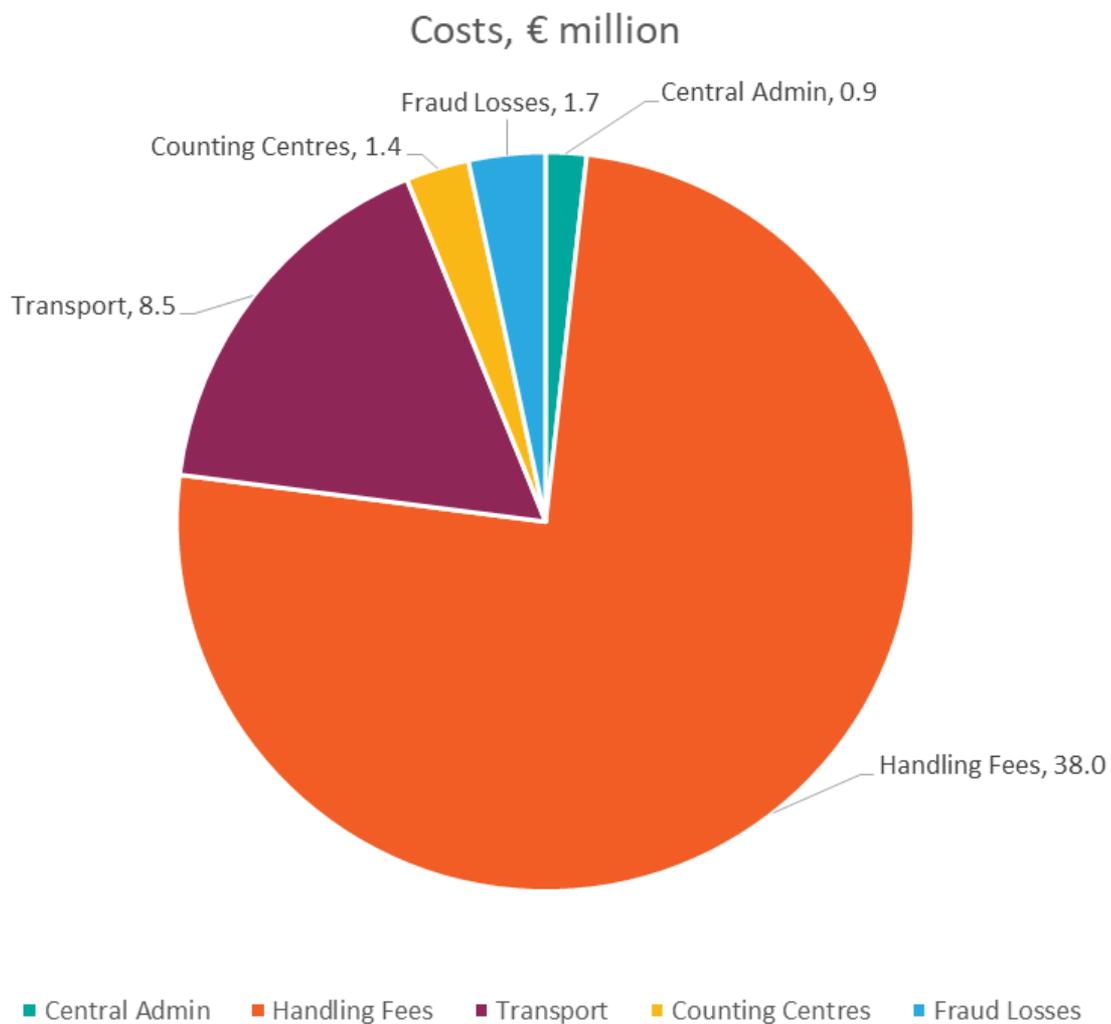
Beverage Sales Used in Modelling

	PET	Aluminium	Steel
Placed on Market (Tons)	49,200	8,455	455
Placed on Market (Million Units)	1,562	338.2	12.7

Mass Flows – Final Destinations



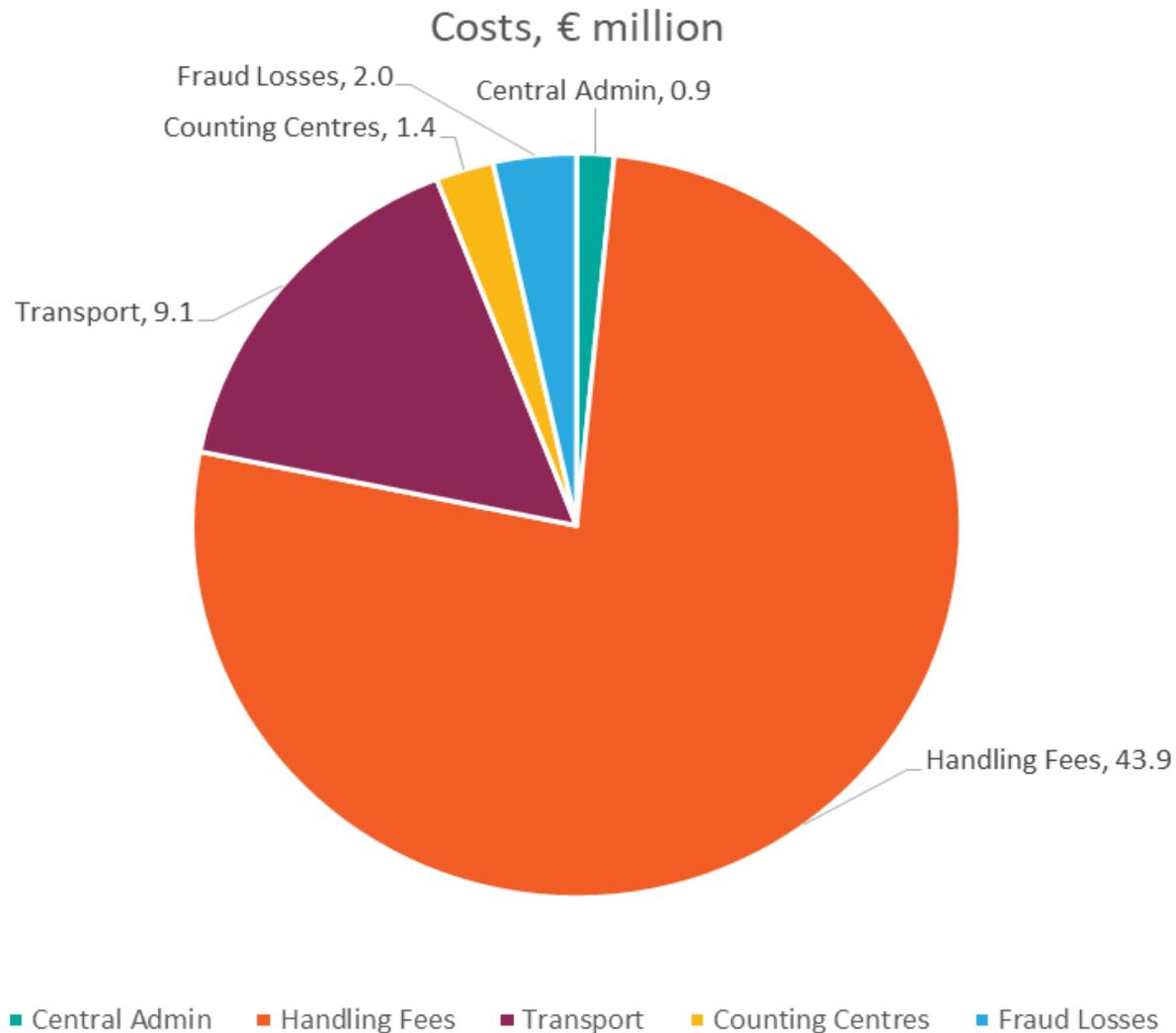
DRS Costs (PET)



DRS Costs (PET)

Item	Total Cost, € million	Cost/Unit POM, € cents
Future System Operator Costs		
Central Admin System	0.9	0.07
Handling Fees - Reimbursing Retailers (RVMs, Labour and Space)	38.0	2.68
Transport Costs	8.5	0.60
Counting Centre Costs	1.4	0.10
Materials Income	-17.7	-1.25
Unclaimed Deposits	-18.5	-1.30
Fraudulently Claimed Deposits	1.7	0.12
Net Cost	14.3	1.01
Funded by Producer Admin Fee	-14.3	-1.01

DRS Costs (PET & Metal)



DRS Costs (PET and Metal)

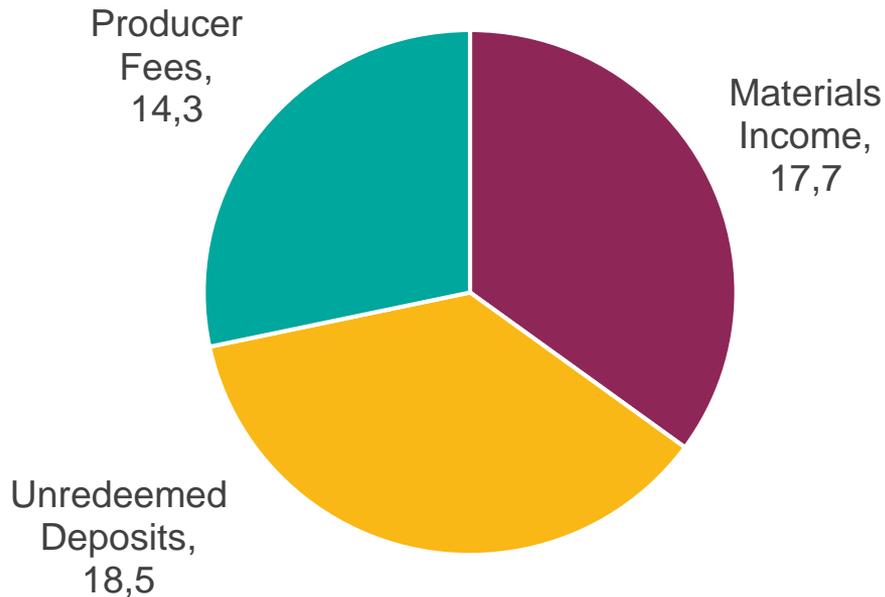
Item	Total Cost, € million		Cost/Unit POM, € cents	
	PET	Metal	PET	Metal
Future System Operator Costs				
Central Admin System	0.5	0.5	0.03	0.15
Handling Fees - Reimbursing Retailers (RVMs, Labour and Space)	36.3	7.67	2.56	2.45
Transport Costs	8.2	0.9	0.58	0.28
Counting Centre Costs	0.7	0.7	0.05	0.23
Materials Income	-17.7	-6.9	-1.25	-2.20
Unredeemed Deposits	-18.5	-4.9	-1.30	-1.55
Fraudulently Claimed Deposits	1.7	0.4	0.12	0.12
Net Cost	11.1	-1.6	0.78	-0.52
Funded by Producer Admin Fee	-11.1	1.61	-0.78	0.52

Retailer Handling Fees

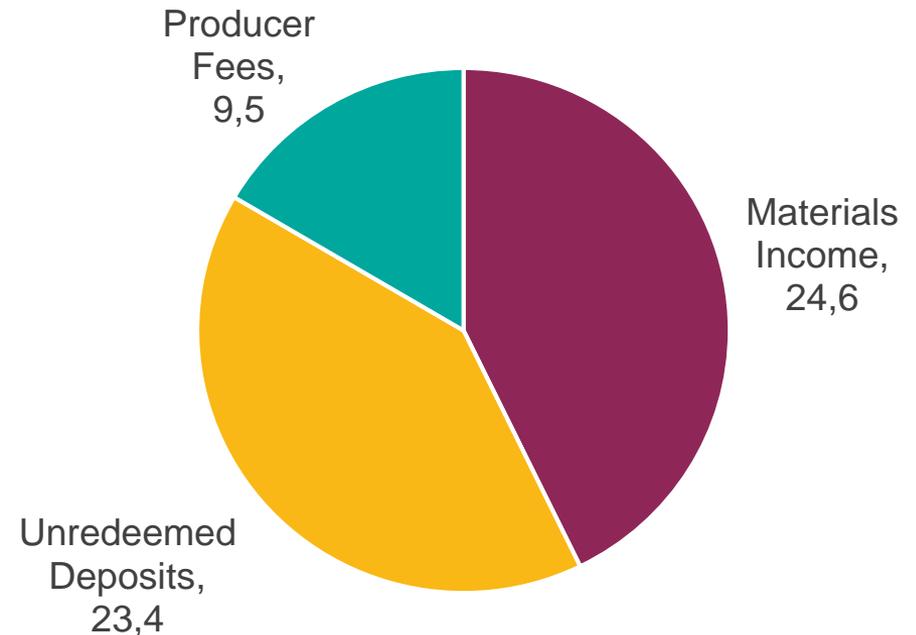
Handling Fee per Container Returned	PET, € cents	PET & Metal, € cents
RVM	2.96	2.86
Manual	2.31	2.03

System Revenues, € million

- **PET**



- **PET & Metal**



Stakeholder Impact: EKO-KOM

- **Lose €10.1 million (PET only) or €11.0 million (PET and metal) in annual fees.**
 - But, fees for other packaging products may increase due to EU Directives.
- **Share collection costs savings with municipalities:**
 - €6.9 million (PET only)
 - €7.0 million (PET and metal)
- **Share savings in sorting, bulking and hauling costs with separation facilities:**
 - €1 million (PET)
 - €1.1 million (PET and metal)

Stakeholder Impact: Municipalities

- **Save in disposal costs:**
 - €113,000 (PET)
 - €250,000 (PET and Metal)
- **If disposal costs increase to €80:**
 - €345,000 (PET)
 - €768,000 (PET and Metal)
- **Share collection costs savings with EKO-KOM:**
 - €6.9 million (PET only)
 - €7.0 million (PET and metal)

Stakeholder Impact: Separation Facilities

- **Save in bulking, hauling and sorting costs.**
- **Lose PET material Revenues.**
- **Overall:**
 - €11.10 million (PET only)
 - €11.06 million (PET and metal)
- **Opportunities to increase recycling of other packaging types**

Environmental Impacts

Monetised Environmental Impacts

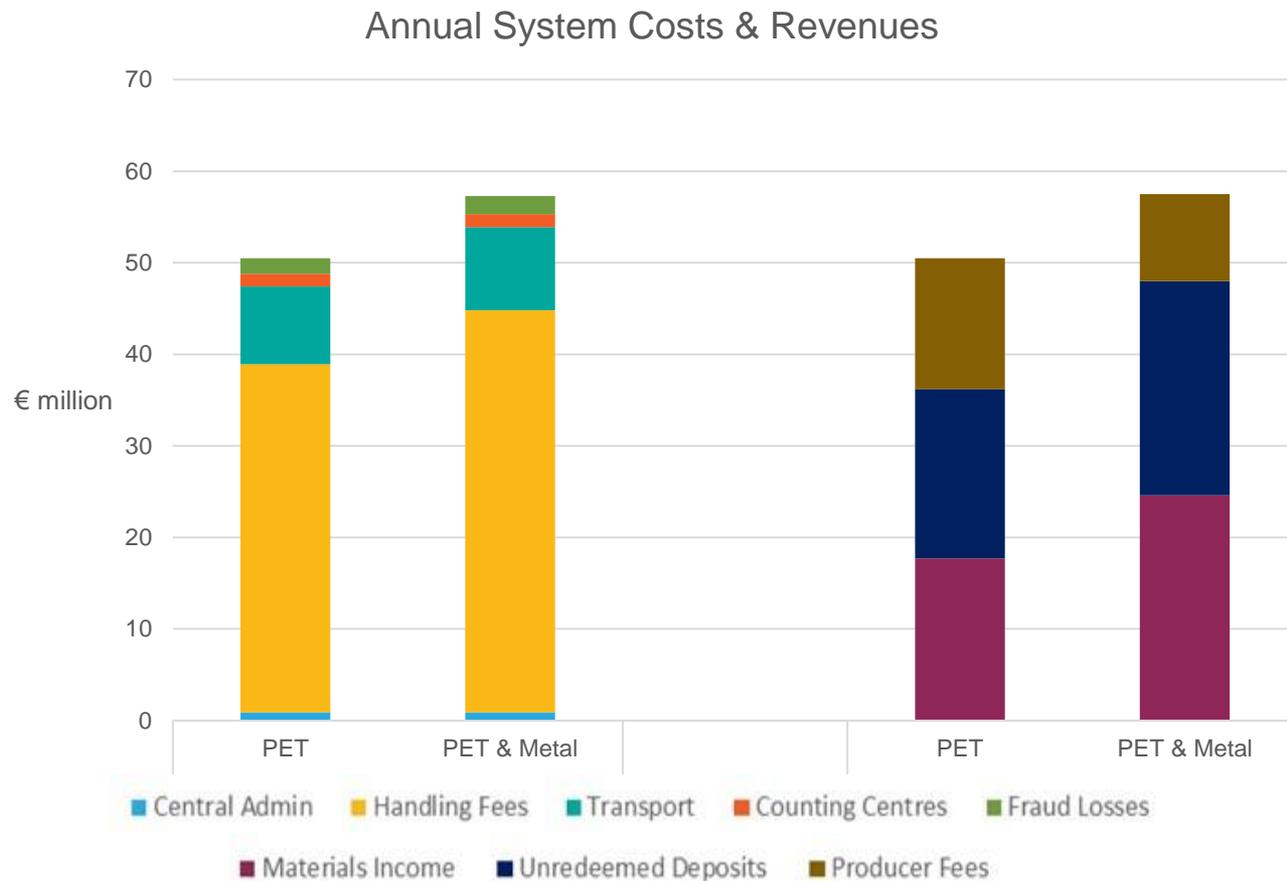
	PET	Metal	Total
Environmental Impacts	€2,237,000	€1,389,000	€3,627,000
Terrestrial Litter	€67,000,000	€12,000,000	€79,000,000
Total	€69,237,000	€13,389,000	€82,627,000

Conclusions

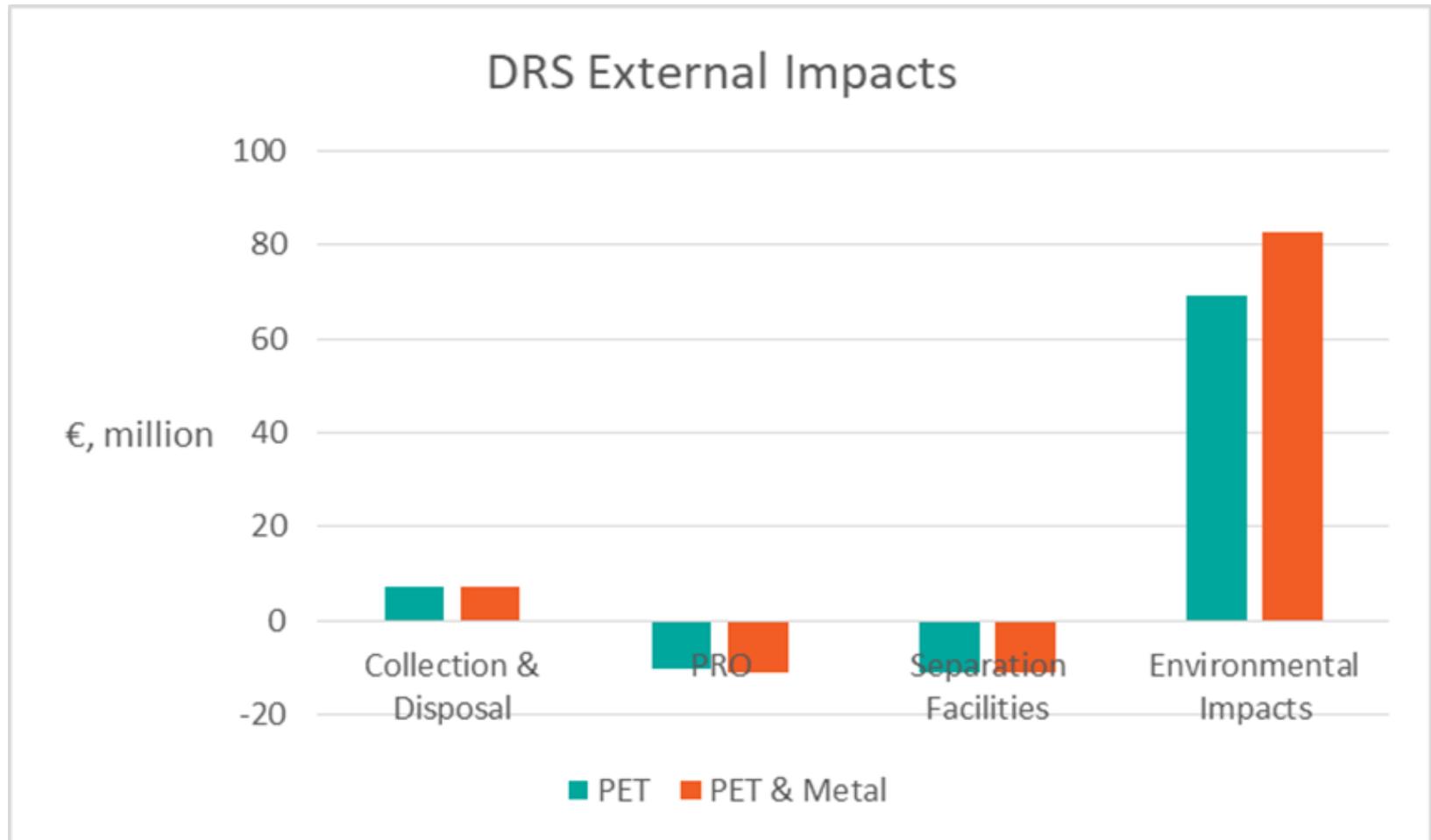
Conclusions

- **DRS not designed to solve all waste challenges**
- **Cost-effective solution for beverage containers**
 - € cent 0.78 per container for PET
 - No fee or negative fee for aluminium
 - Producer costs lower than current PRO fees if metal cans included
- **90%+ recycling rate**
- **90%+ litter reduction**
- **High quality supply for recycled content commitments**
- **No cost to taxpayers**

Summary



Summary



Any Questions?



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