

Deposit Return Systems

Design Options and Implications

10th October 2019

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About Eunomia

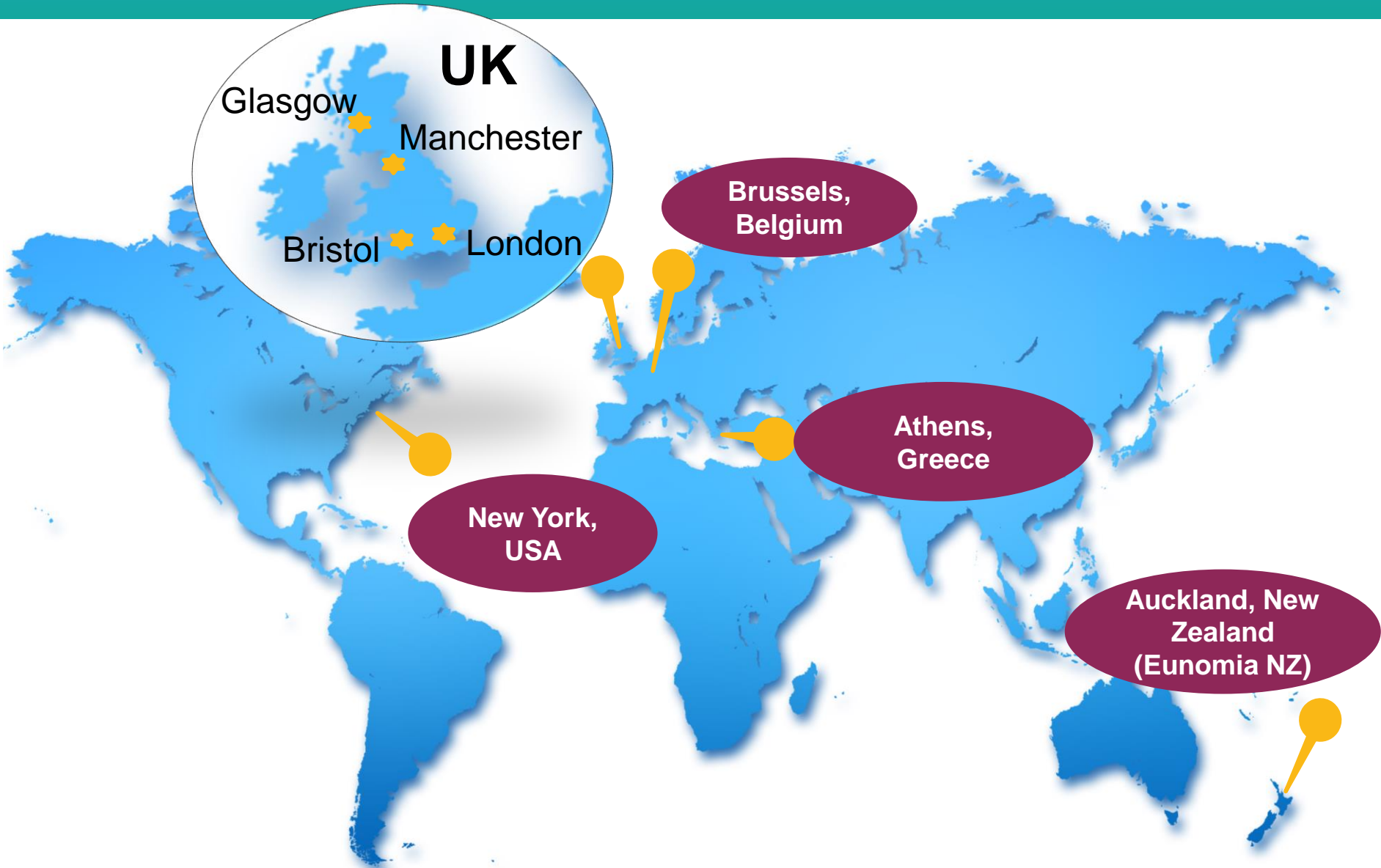


Brussels,
Belgium

Athens,
Greece

New York,
USA

Auckland, New
Zealand
(Eunomia NZ)



Global DRS Expertise

Modernising Québec's DRS

Potential of existing system to achieve 90%

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

Jobs Review

Designing a DRS for the Czech Republic

Californian DRS Review

Reforming Connecticut's Bottle Bill

Regulatory review & consultation support

Hong Kong costs & jobs

Ontario DRS modelling

Impact assessment for the Canary Islands

Cost Benefit Analysis in Catalonia

Socially inclusive DRS

What is a Deposit Return System?

- Typically applies to beverage containers.
- Using a refundable deposit to incentivise consumers to return their used containers.
- Aims:
 - Increase recycling
 - Reduce litter

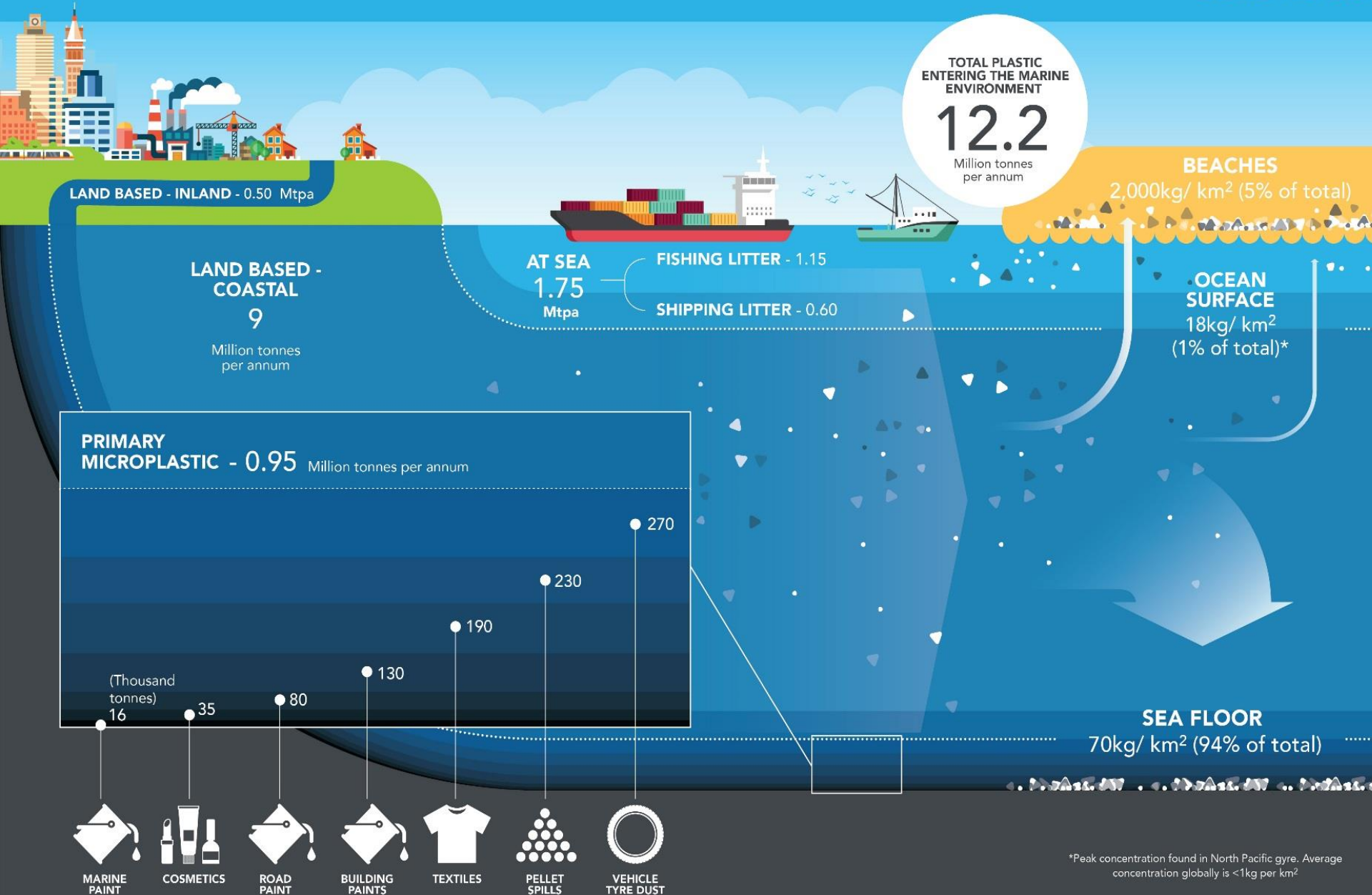


Benefits

- **Reduced Litter (~ 95%)**
- **Reduced greenhouse gas emissions**
- **Increased employment**
- **Quality recycled material for new beverage containers**
- **Beverage Industry**
 - **Effective means to implement producer responsibility**
- **Retailers**
 - **Compensated through the handling fee**
 - **Customer footfall & engagement**
- **Government**
 - **Reduced residual waste and litter costs**
 - **Costs of waste borne by those creating it – reduced burden on general taxpayer**

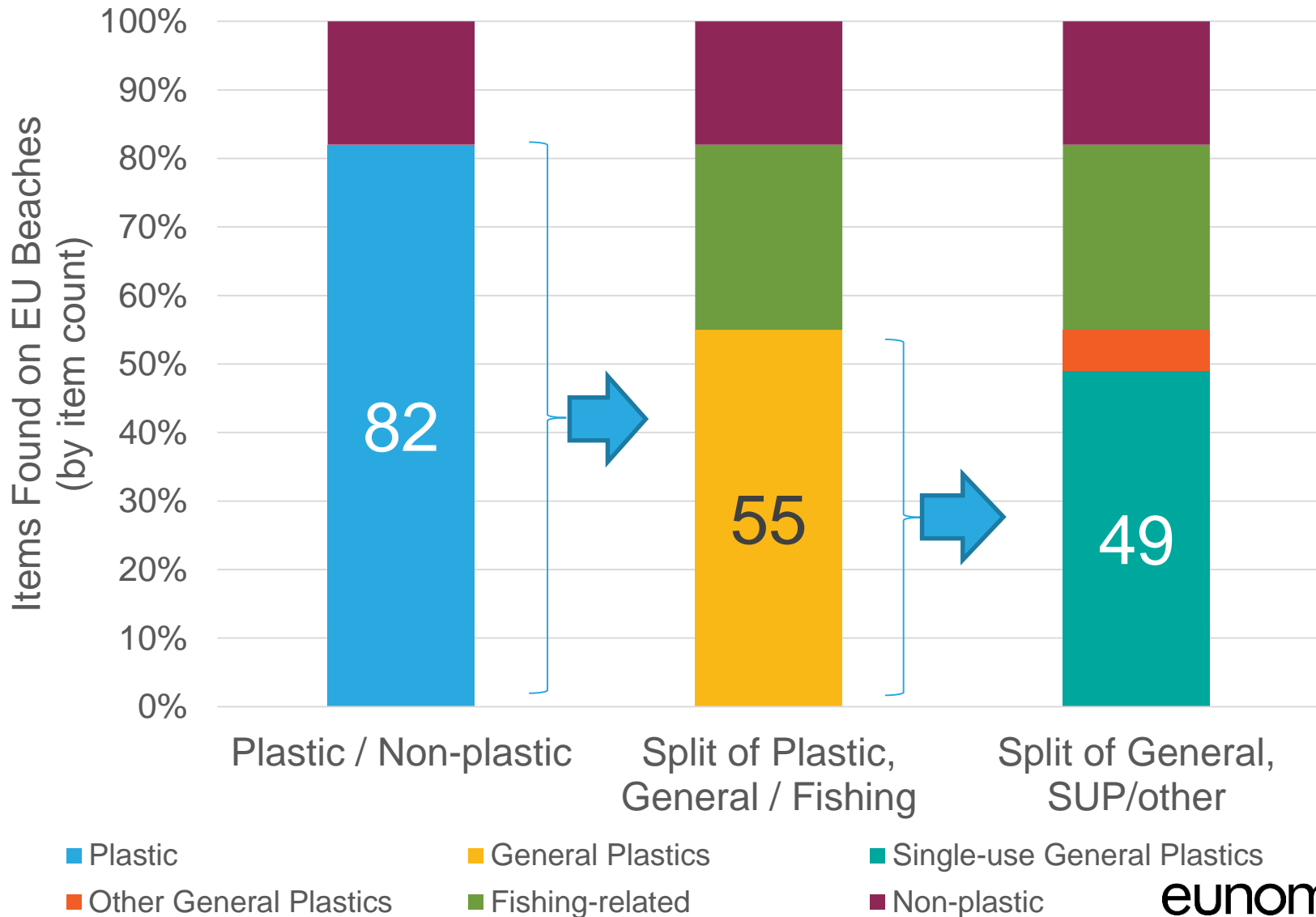
Litter

PLASTICS IN THE MARINE ENVIRONMENT: WHERE DO THEY COME FROM? WHERE DO THEY GO?

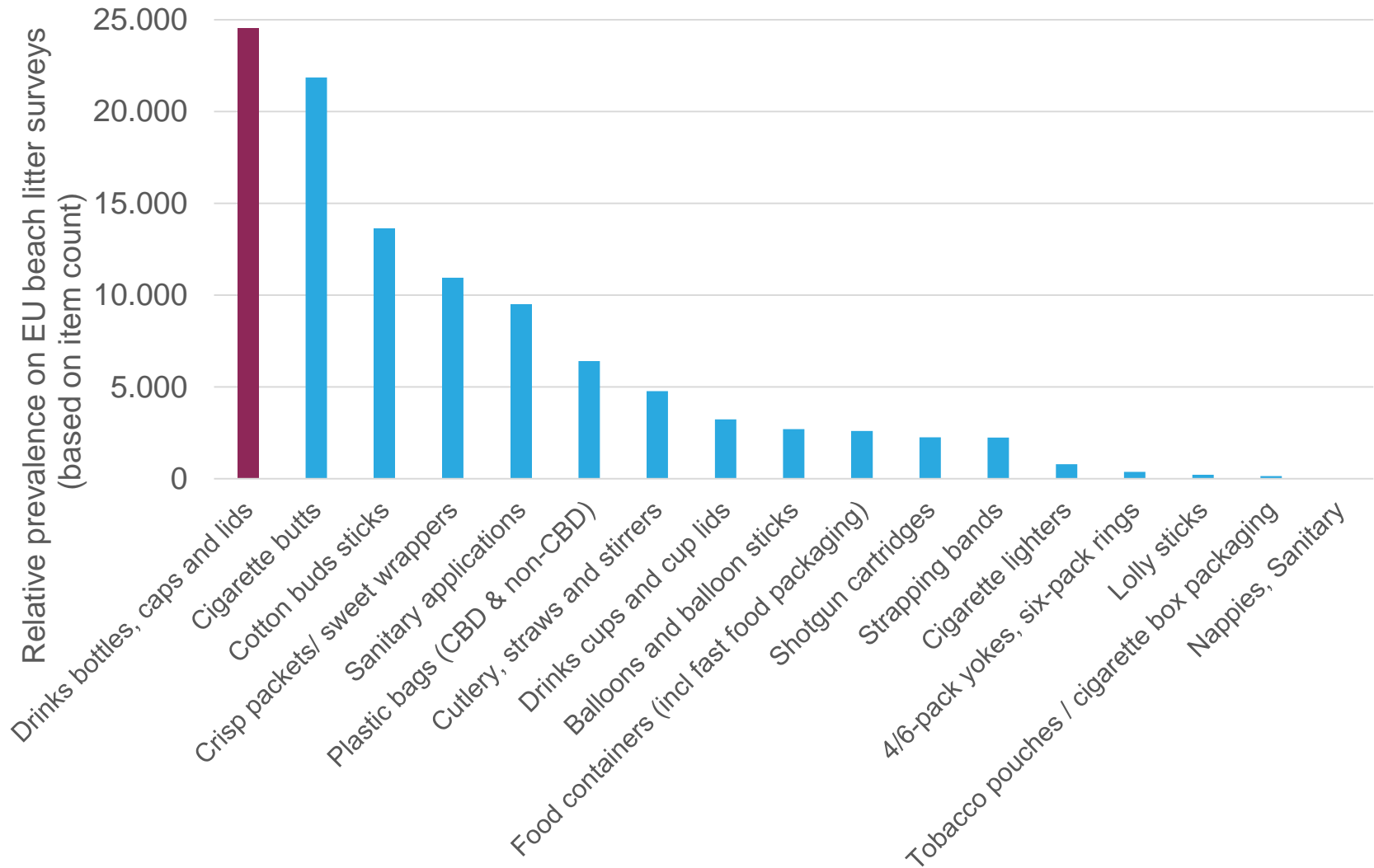


*Peak concentration found in North Pacific gyre. Average concentration globally is <1kg per km²

EU Beach Litter (%)



The EU Problem



Source: Eunomia analysis of JRC data

Top 10 Items Collected



1. CIGARETTE BUTTS
2,127,565



6. OTHER PLASTIC BAGS
424,934



2. PLASTIC BEVERAGE BOTTLES
1,024,470



7. GLASS BEVERAGE BOTTLES
402,375



3. FOOD WRAPPERS
888,589



8. PLASTIC GROCERY BAGS
402,122



4. PLASTIC BOTTLE CAPS
861,340



9. METAL BOTTLE CAPS
381,669



5. STRAWS, STIRRERS
439,571



10. PLASTIC LIDS
351,585



1. CIGARETTE BUTTS
2,412,151



2. FOOD WRAPPERS
1,739,743



3. PLASTIC BEVERAGE
BOTTLES
1,569,135



4. PLASTIC BOTTLE CAPS
1,091,107



5. PLASTIC GROCERY BAGS
757,523



6. OTHER PLASTIC BAGS
746,211



7. STRAWS, STIRRERS
643,562



8. PLASTIC TAKE OUT/
AWAY CONTAINERS
632,874



9. PLASTIC LIDS
624,878



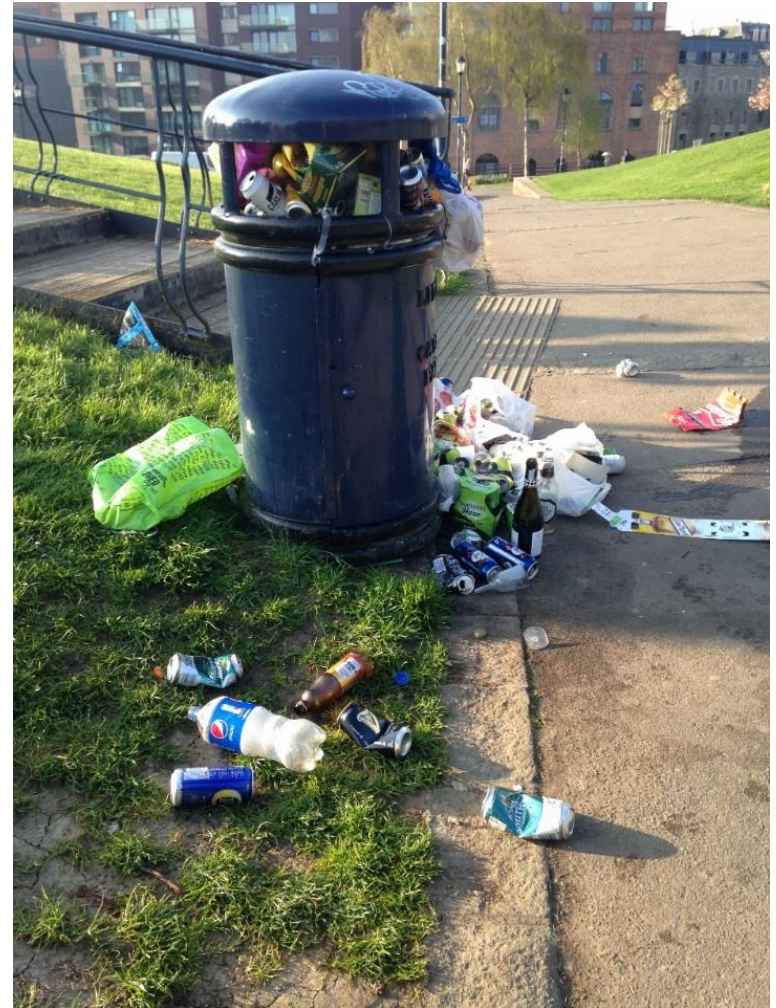
10. FOAM TAKE OUT/
AWAY CONTAINERS
580,570

Land-based litter is still significant



Land-based litter

- **Expensive to clean up**
- **Neighbourhood disamenity**



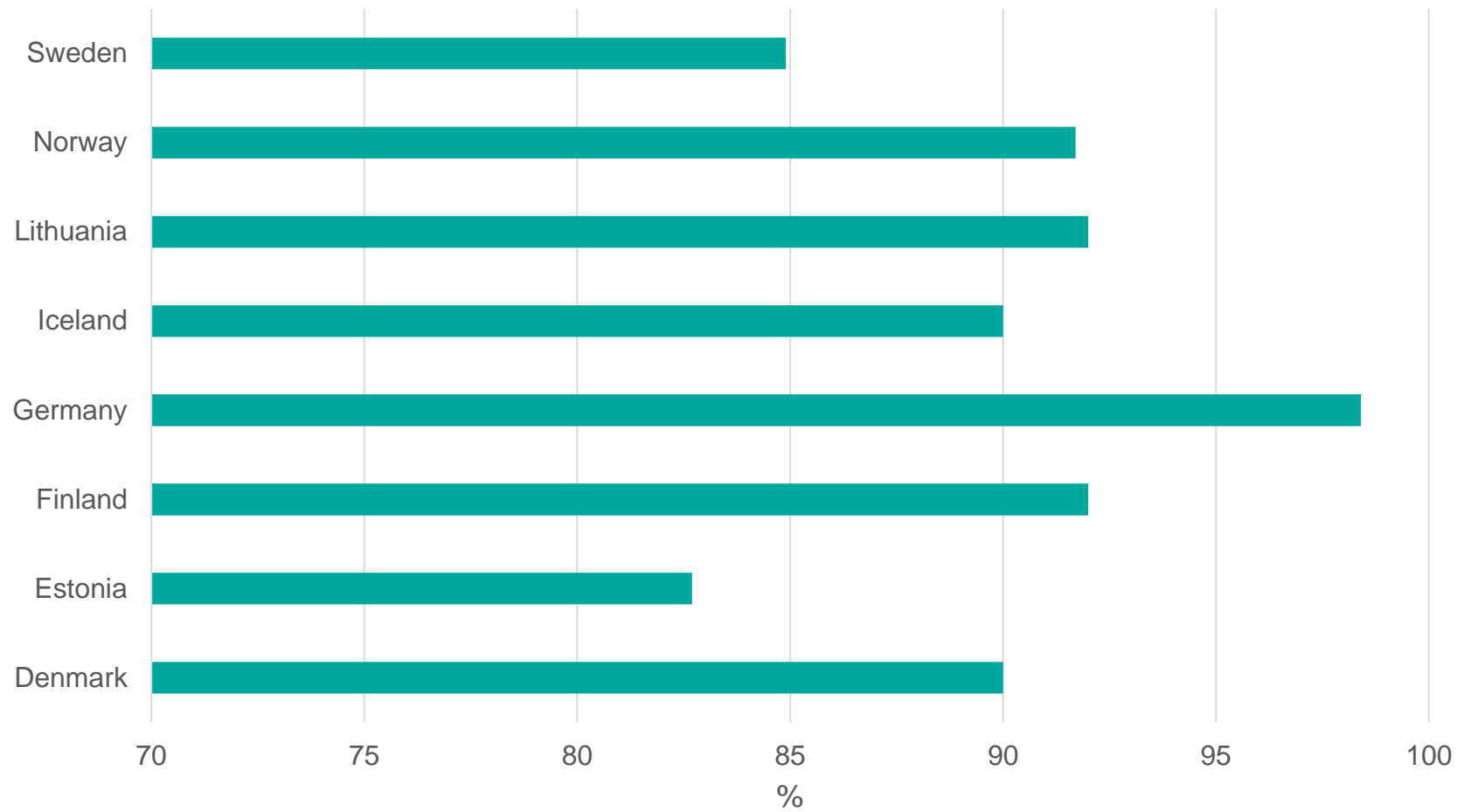
Impacts on Wildlife

- **8% of littered bottles and nearly 5% of cans contained dead mammals**
- **Including shrews, bank voles and wood mice**
 - <http://www.keepbritaintidy.org/thoughtless-tossers-are-killing-our-wildlife>



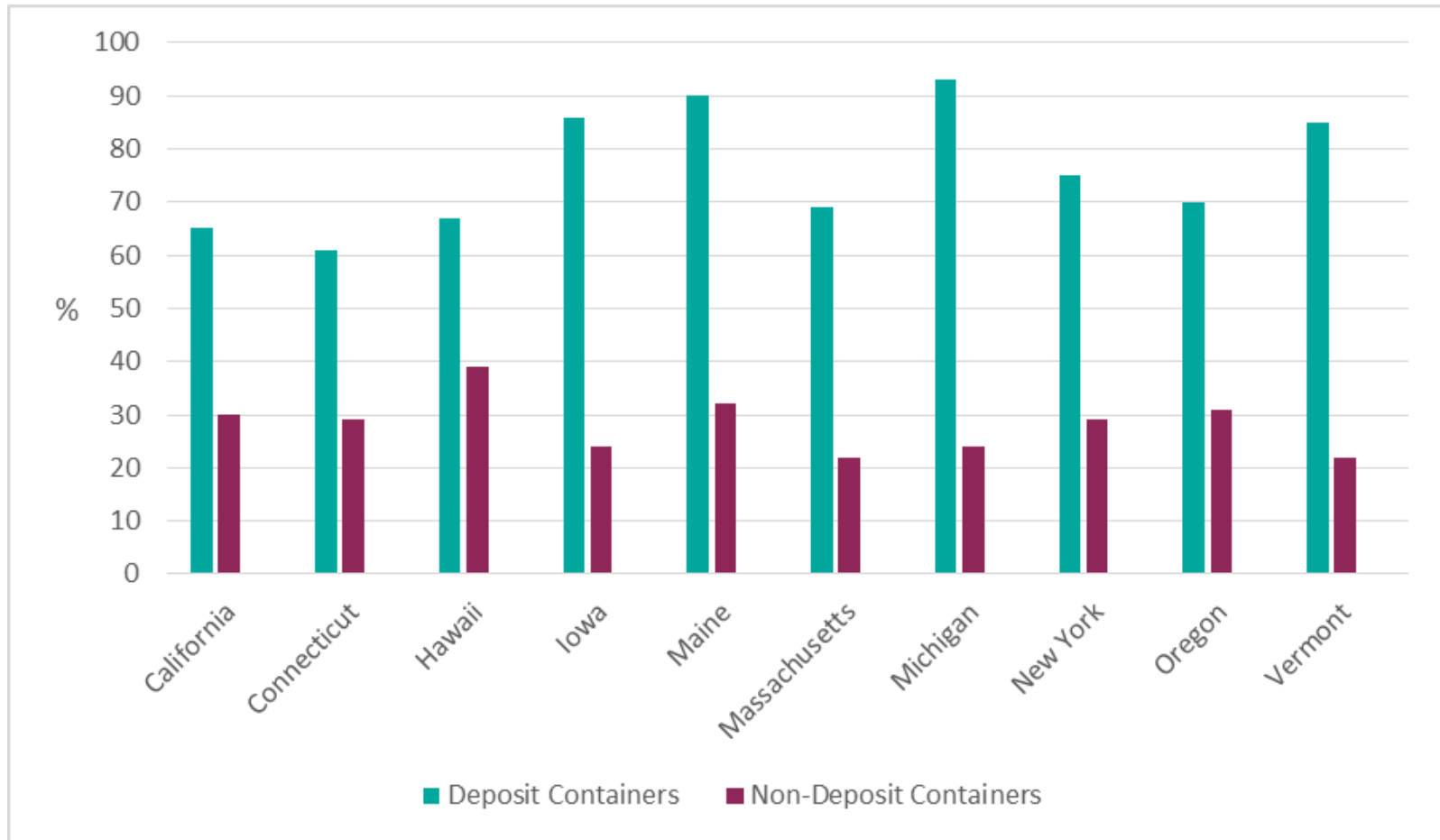
Improved Recycling Rates

DRS Return Rates



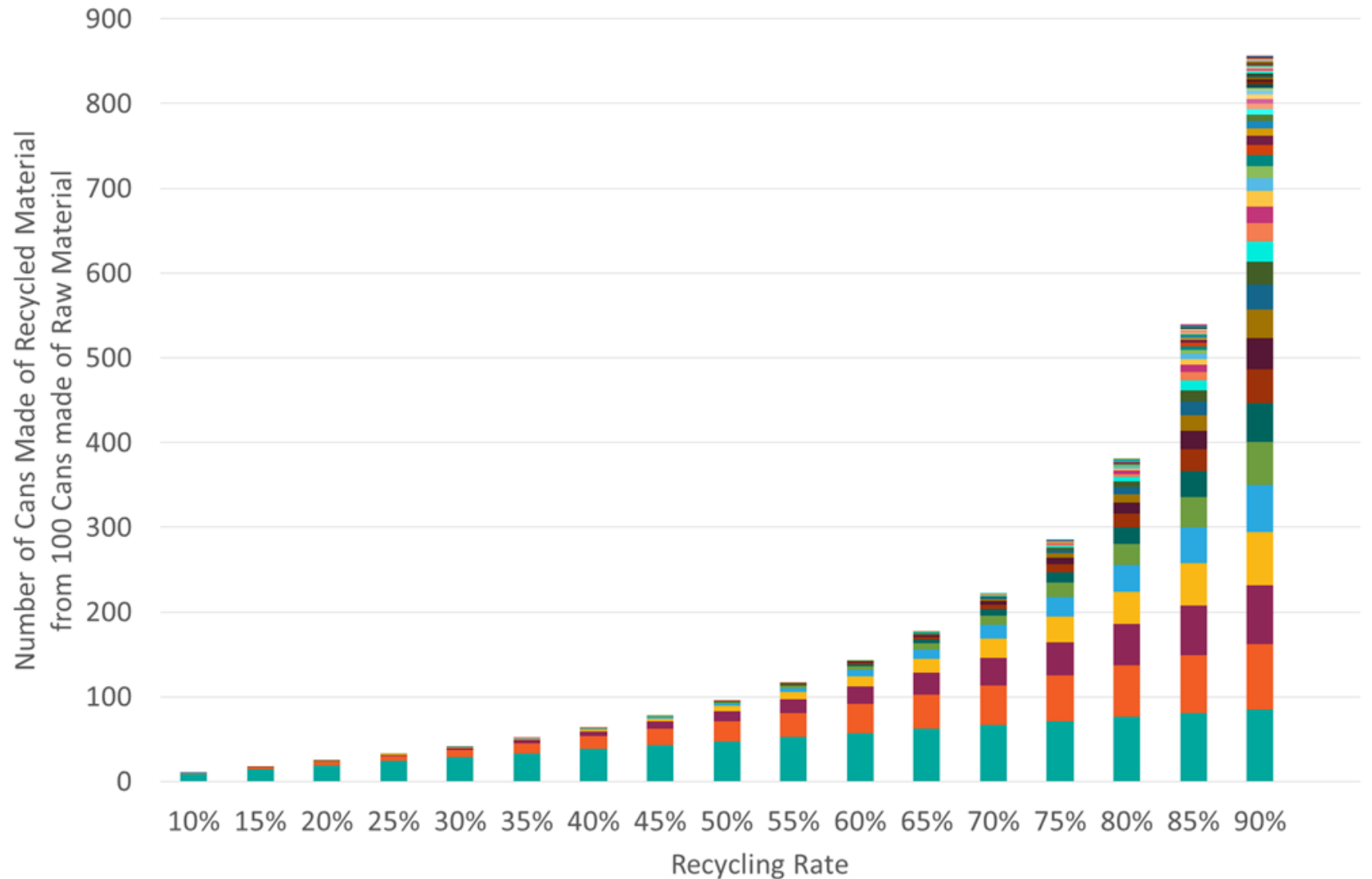
Source: Reloop (2018) Deposit Systems for One-Way Containers: Global Overview

Recycling Rates in US States with DRS



Year: 2015

Supply of Recycled Content



Government Savings

FINANCIAL IMPACT OF DEPOSIT REFUND SYSTEM ON EXISTING LOCAL AUTHORITY WASTE SERVICES

eunomia 



*based on the 4 high performing authorities in the report | ** based on all 8 authorities in the report | *** based on interviews with a range of authorities in the report
Range of annual savings/loss of revenue analysed in Eunomia's October 2017 report *Impacts of a Deposit Refund System for One-way Beverage Packaging on Local Authority Waste Services*

Design Options

Governance

- **State or industry-run**
 - Degrees of design flexibility
- **Centralised operator or decentralised**
- **Fraud prevention**
 - (using barcodes to monitor sales volumes & return data)
- **Statutory targets**
- **Implications for:**
 - Producer responsibility
 - Transparency & accountability
 - Efficiency
 - System success

Governance – Positive Examples

- **Norway**

- **Run by central system operator**
 - Arranges logistics; manages data & finances
 - Promotes compliance
 - Publishes annual report and accounts
- **System set up and owned by industry**
 - Not for profit
 - Beverage and retail industries represented on the board
- **Government provides tax incentive to achieve high return rates**



- **Estonia**

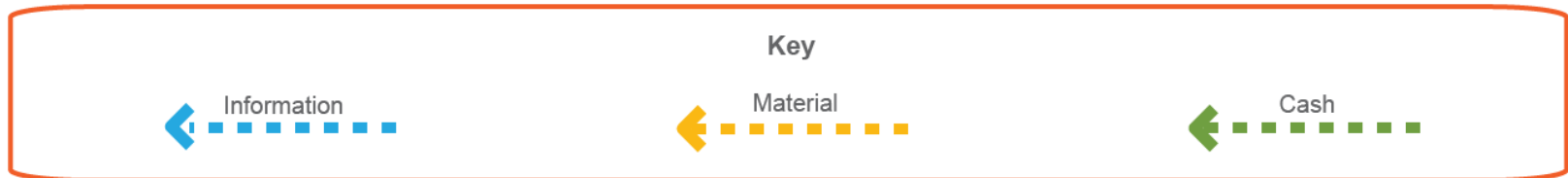
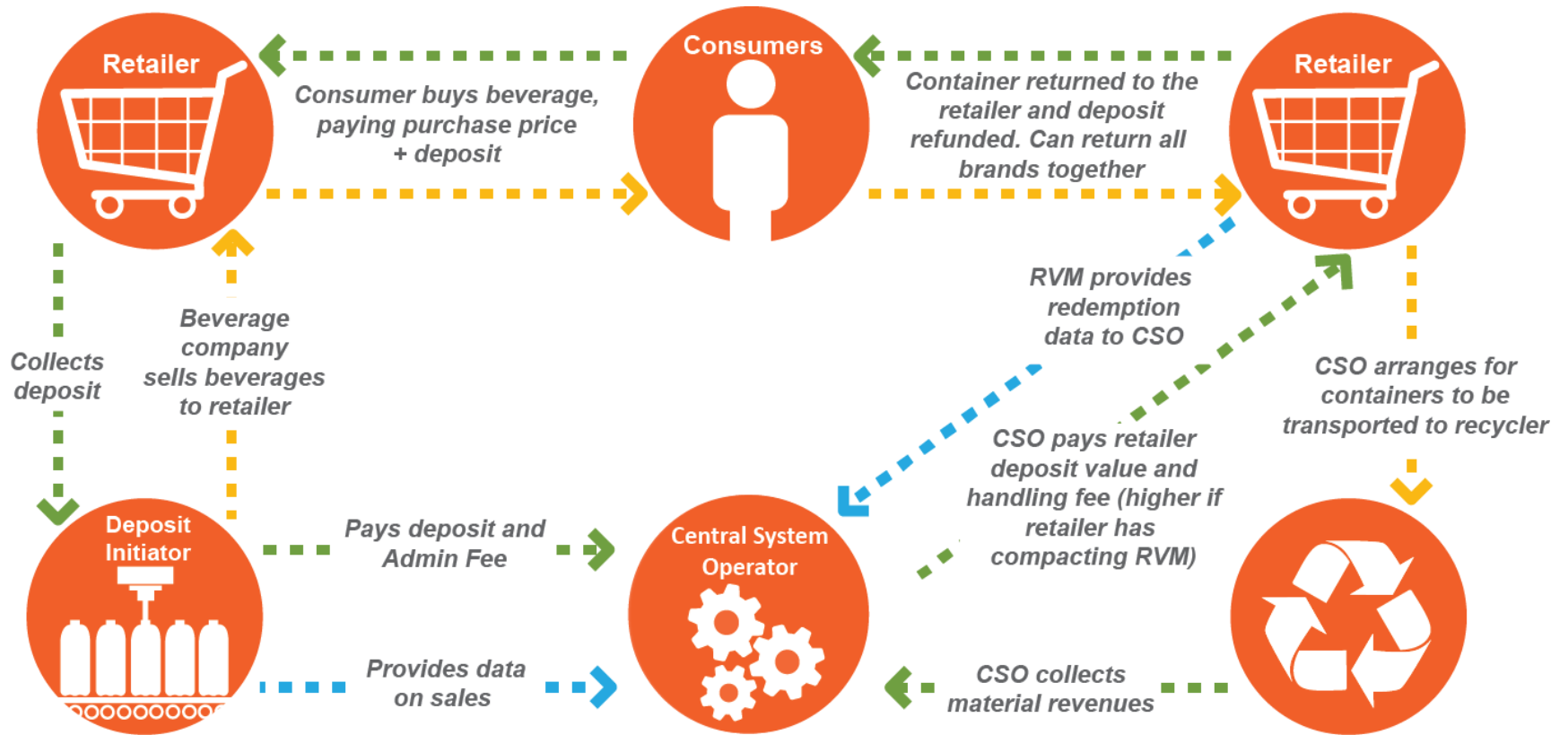
- **Similar operator model to Norway**
- **Criminal penalties for non-compliance**



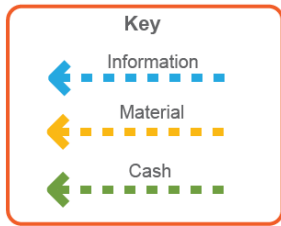
Governance – Alternative Approaches

- **Connecticut, USA**
 - No single organisation responsible for system operation and success.
 - Individual beverage companies organise their own logistics and the money flows.
 - System design specified in Government legislation.
 - No targets; limited oversight.
 - Costs not fairly or transparently apportioned.
- **Hawaii, USA**
 - State run - undermines producer responsibility.
 - Funded by Government and consumers.

Central System Operator organisation



Connecticut organisation

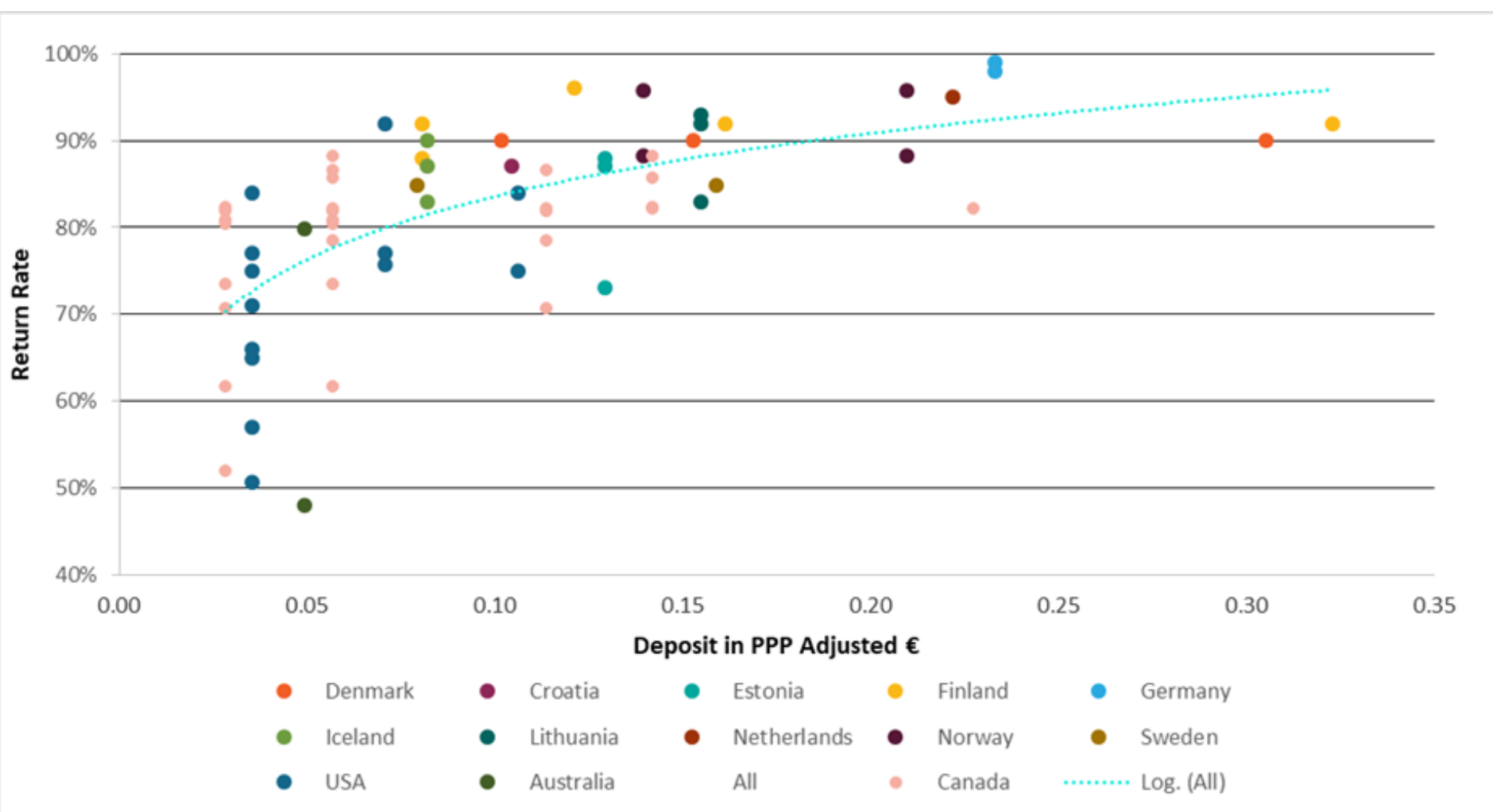


Deposit Level

- **Key to incentivising returns**
- **Balanced against fraud risk:**
 - Deposit not initiated;
 - Multiple redemptions;
 - Fraudulent redemptions (non-deposit bearing containers returned)
- **Proportionate to beverage cost**
- **\$0.05 in USA (€0.04)**
- **€0.25 in Germany**



Deposit Level & Return Rate



Return Infrastructure - Where

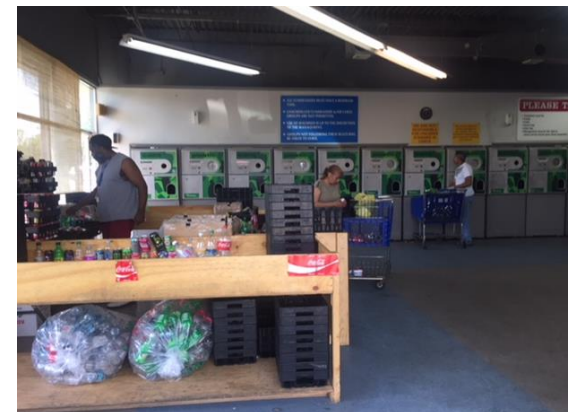
- **Retailers**

- All or only large shops
 - Convenience for consumer
 - Fairness to small retailers
- Paid a handling fee
- Manual or automated
 - Cost
 - Fraud
 - Employment
 - Logistics



- **Redemption centres**

- Run by
 - System Operator
 - Contracted businesses
 - Cost & convenience
- Manual or automated

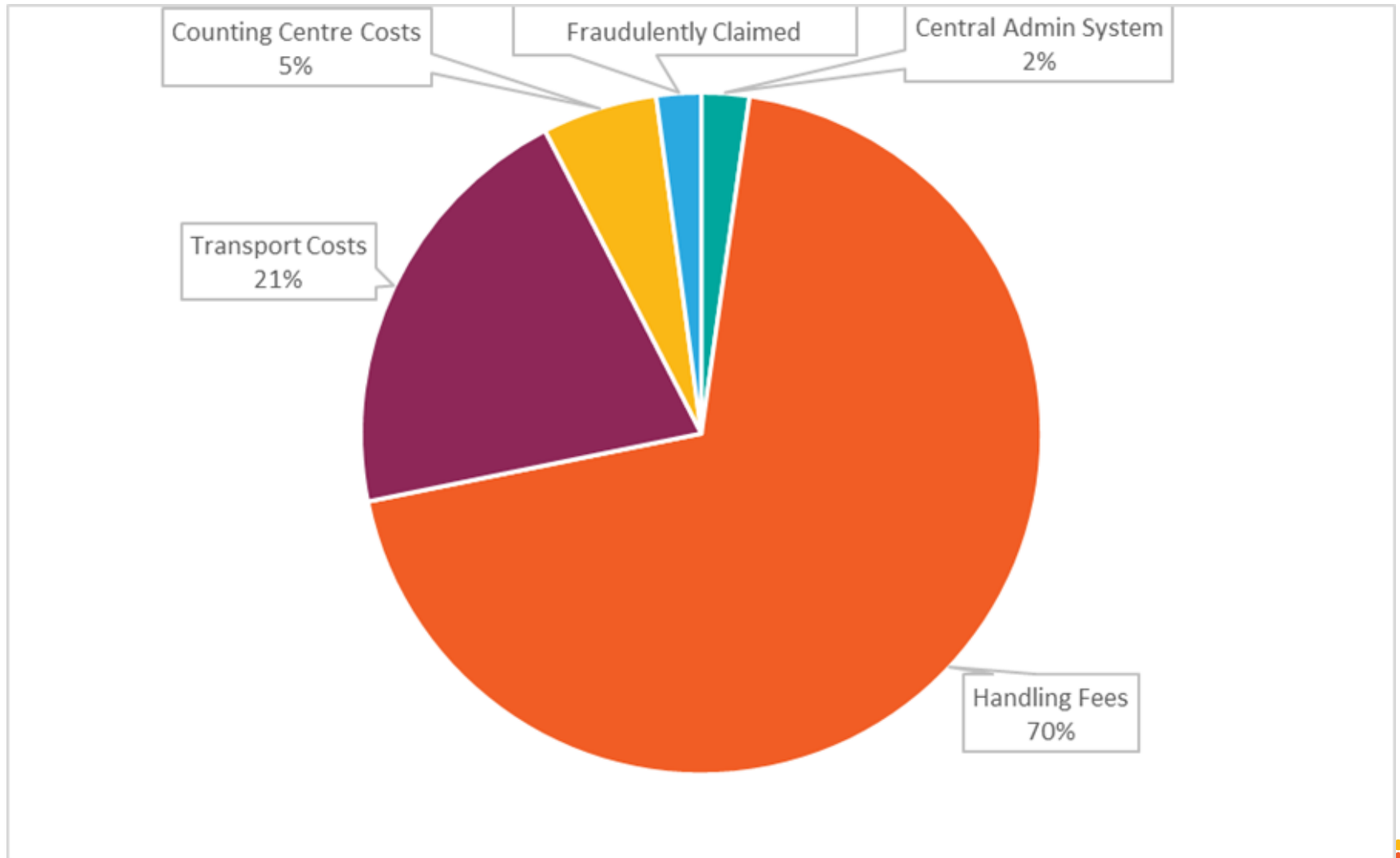


Handling Fee

- **Best practice**
 - System operator calculates retailers' costs:
 - Space
 - staff
 - RVMs (where used)
 - Reflects efficiency savings for system operator
 - Updated as costs change



Indicative Costs by Type

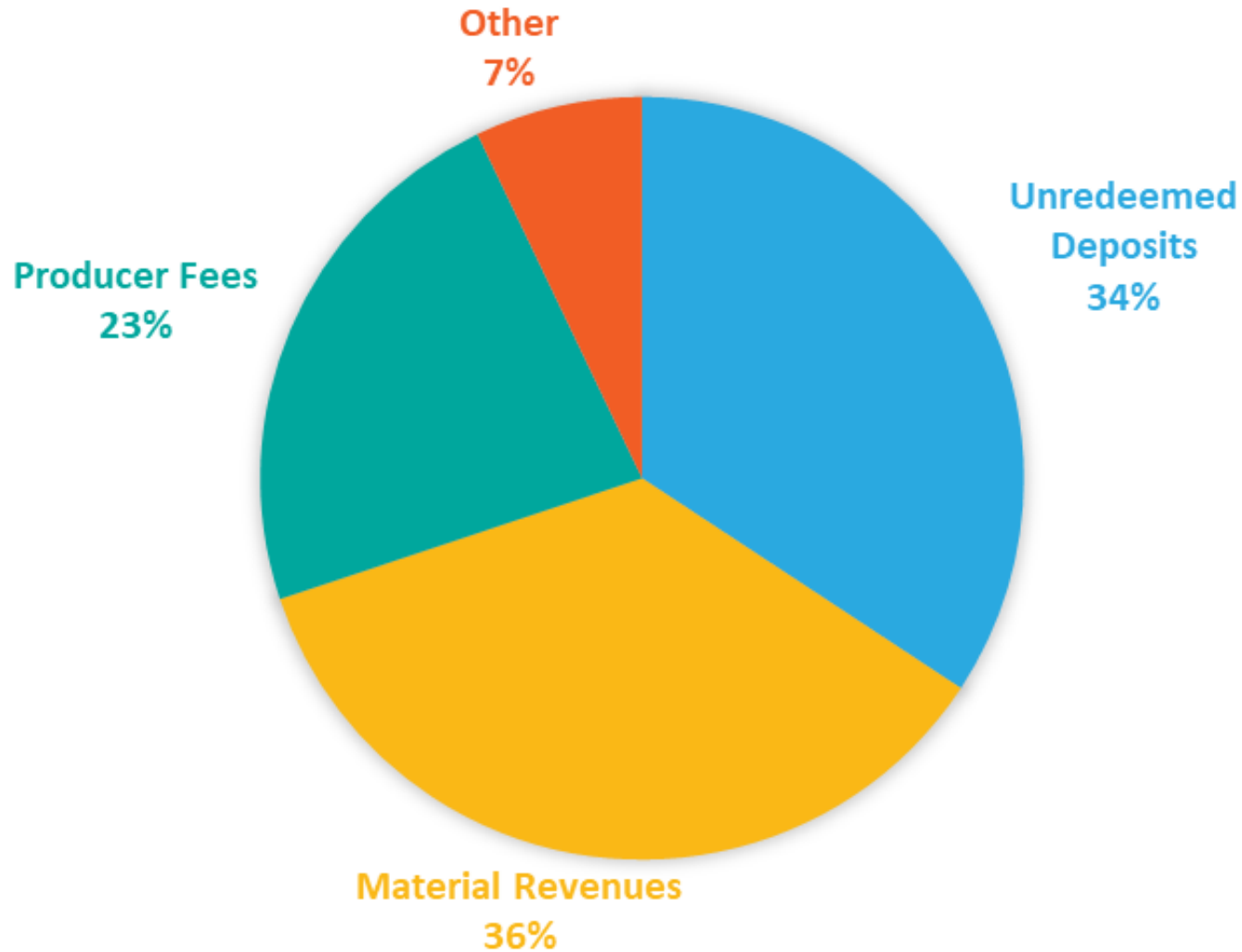


Funding – Material Ownership

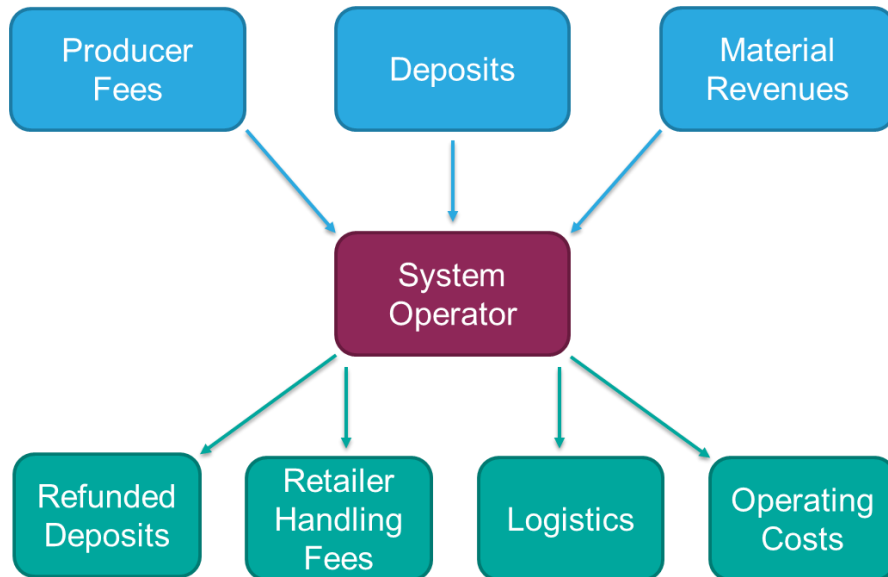
- **Best practice**
 - Material returned to system operator to organise processing & recycling.
 - System operator markets material in bulk to secure best price.
 - Revenues re-invested in system.



Funding - Norway



Funding – Producer fees



- **Best practice**
 - **Minimum level to cover remaining costs**
 - **Differentiate by container type**
 - **Modulation of fees used to promote eco-design**

European DRS Costs

- **Norway**
 - Aluminium can: -₺0.04
 - Steel can: ₺0.15
 - Additional fee for plastic sleeve: ₺0.02
 - PET Bottle: ₺0.08
 - HDPE Bottle: ₺0.19
 - Additional fee for light blue plastic: ₺0.06
 - Additional fee for coloured plastic: ₺0.11
 - Additional fee for standard barcode: ₺0.04

European DRS Costs

- **Estonia**

- **PET bottle \leq 0.75 litres: €0.0110 (₹0.08)**
- **PET bottle $>$ 0.75 litres: €0.0197 (₹0.15)**
- **Glass bottle: €0.0197 (₹0.15)**
- **Metal can: €0.0000 (No fee)**
- **International barcode additional fee: €0.0050 (₹0.04)**

Retailer Handling Fees

- **Norway**

- **Compacting RVM:**



- **Manual**



- **Estonia**

- **Compacting RVM:**



- **Manual**



A Turkish DRS

Estimated Costs & Impacts

- **Scope:**
 - Plastic, metal, glass
- **Target return rate**
 - 90%
 - 12 billion beverage containers
 - 1.2 million tonnes
- **Retailer Handling Fee**
 - ₪0.04 - ₪0.16
- **Net cost per container**
 - ₪0.04
- **Annual CO₂ reduction**
 - 263,000 tonnes
- **Annual Litter reduction**
 - 33,000 tonnes



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