



Deposit Return Systems



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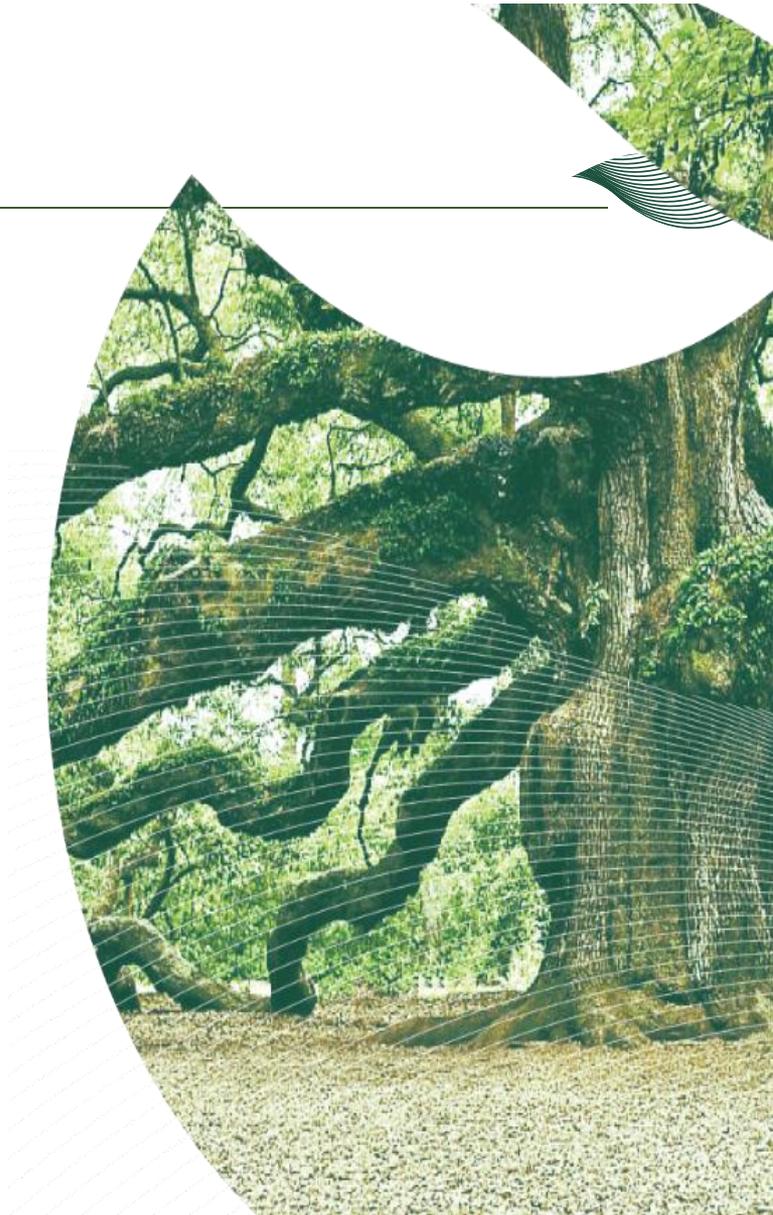
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resources remain resources

- Mandated **Minimum recycled content** in products and packaging
- Increased market share of **reusable packaging (B2B and B2C)**
- Effective implementation of new rules for **reuse & recycling calculations, reporting & transparency**
- Introduction of **deposit return systems** for beverage containers
- Increased **collection and sorting** systems



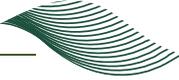


Important European Legislative Trends





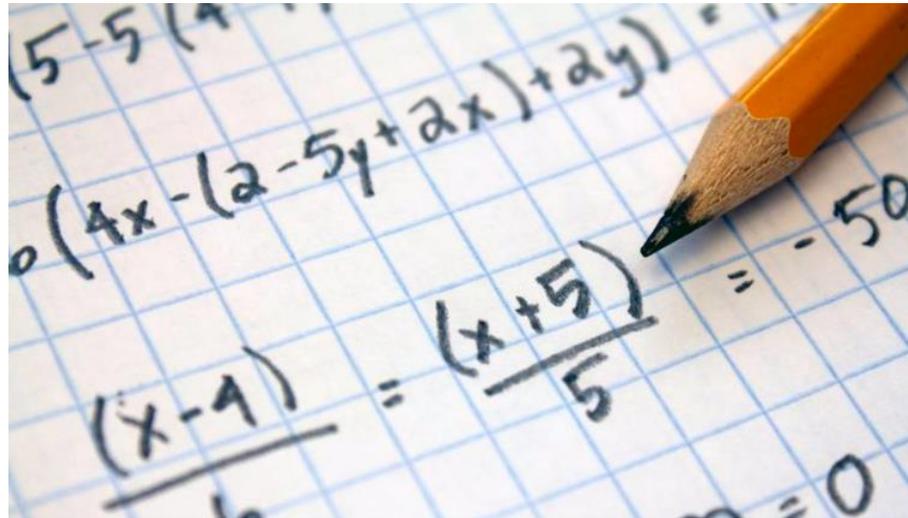
Final Legislative Amendments Published (May 2018)



- ✓ A **cap on landfilling** of waste to 10% by 2035
- ✓ A **65% binding target for recycling** of household waste by 2035
- ✓ Packaging targets by 2025 / 2030: **Plastics: 50%/55%**; aluminum 50%/60%; Steel 70%/80%; glass 70%/75%; paper and paperboard 75%/85%.
- ✓ **EPR: producers will be required to pay for up to 80% of the costs** for new EPR programs and EU programs and 50% for existing national programs.
- ✓ A **new recycling calculation**, which moves the point of measurement to the input of the final recycling facility - after all sorting has taken place. **Contamination and losses must be removed from the weight of recyclables being reported.**



New recycling calculation method to **net out contaminants in collection and** new rules on reporting weight of **packaging waste generated.** (by spring 2019).



ANNEX I

Non-exhaustive list of calculation points referred to in article 6(2)

Material	Calculation Point
Glass	Sorted glass that does not undergo further processing <u>before</u> entering a glass furnace or the production of filtration media, abrasive materials, glass fibre insulation and construction materials.
Metals	Sorted metal that does not undergo further processing before entering a metal smelter or furnace
Paper / board	Sorted paper that does not undergo further processing before entering a pulping operation
Plastics	Plastic separated by polymer that does not undergo further processing before entering <u>pelletisation</u> , extrusion, or moulding operations; Plastic flakes that do not undergo further processing before their use in a final product.



May 2018, European Commission tables **Single Use Plastics Directive**

December 19, **Trilogue agreement reached**

July 2019 – **published**



Single-use plastic products **banned** from the marketplace **as of 2021**.

- Cotton bud sticks (with medical-use exceptions)
- Cutlery (forks, knives, spoons, chopsticks)
- Plates
- Straws, stirrers
- balloon sticks
- Oxo-degradable plastics and
- Expanded polystyrene (EPS) food containers and cups

NO SINGLE-USE PLASTICS



cutlery



cotton buds



straws



stirrers

•Producers of specific single use plastic products must pay into an Extended Producer Responsibility program that must cover the costs of

- collection
- transport
- Treatment and
- clean up litter
- awareness raising measures

- Food containers
- Packets and wrappers
- Beverage containers + their caps & lids
- Cups for beverages
- Tobacco products + filters
- Wet wipes
- Balloons
- Lightweight plastic carrier bags



Article 9 collect separately for recycling, beverage bottles with a capacity of up to three litres, including their caps and lids

- no later than by **2025**, an amount of waste single-use plastic products listed in Part F of the Annex equal to **77%** of such single-use plastic products placed on the market in a given year by weight;
- no later than by **2029**, an amount of waste single-use plastic products listed in Part F of the Annex equal to **90%** of such single-use plastic products placed on the market in a given year by weight.

In order to achieve that objective MSs may inter alia:

- a) establish deposit-refund schemes, or
- b) establish separate collection targets for relevant extended producer responsibility schemes.



Higher targets for PET Recycling



Voluntary Commitment/Pledges

- ✓ PET Industry target of 65% by 2030
- ✓ European Federation of Bottled Water commitment of 90% collection by 2025

Legislated

- ✓ PPWD: Plastic packaging recycling 55% by 2030
- ✓ SUPD Plastic beverage bottles with caps collected for recycling, 90% by 2029

Defined in SUPD as:

“Beverage bottles with a capacity of up to three litres, including their caps and lids”



Product requirements



- Single-use plastic beverage container caps and lids remain attached to the container during the product's intended use stage. (by 2024)
- Beverage bottles must be made from 25% recycled rPET by 2025, and 30% in 2030 recycled plastic – all kinds.

And what about the Caps ?



ReLoop asked:

“ We are gathering some data about the percent of PET bottles which come back with caps on in a deposit return system. Can you each provide your own ranges based on your own program’s and experience?”

Approximately 90%-99% of plastic bottles have their caps on.

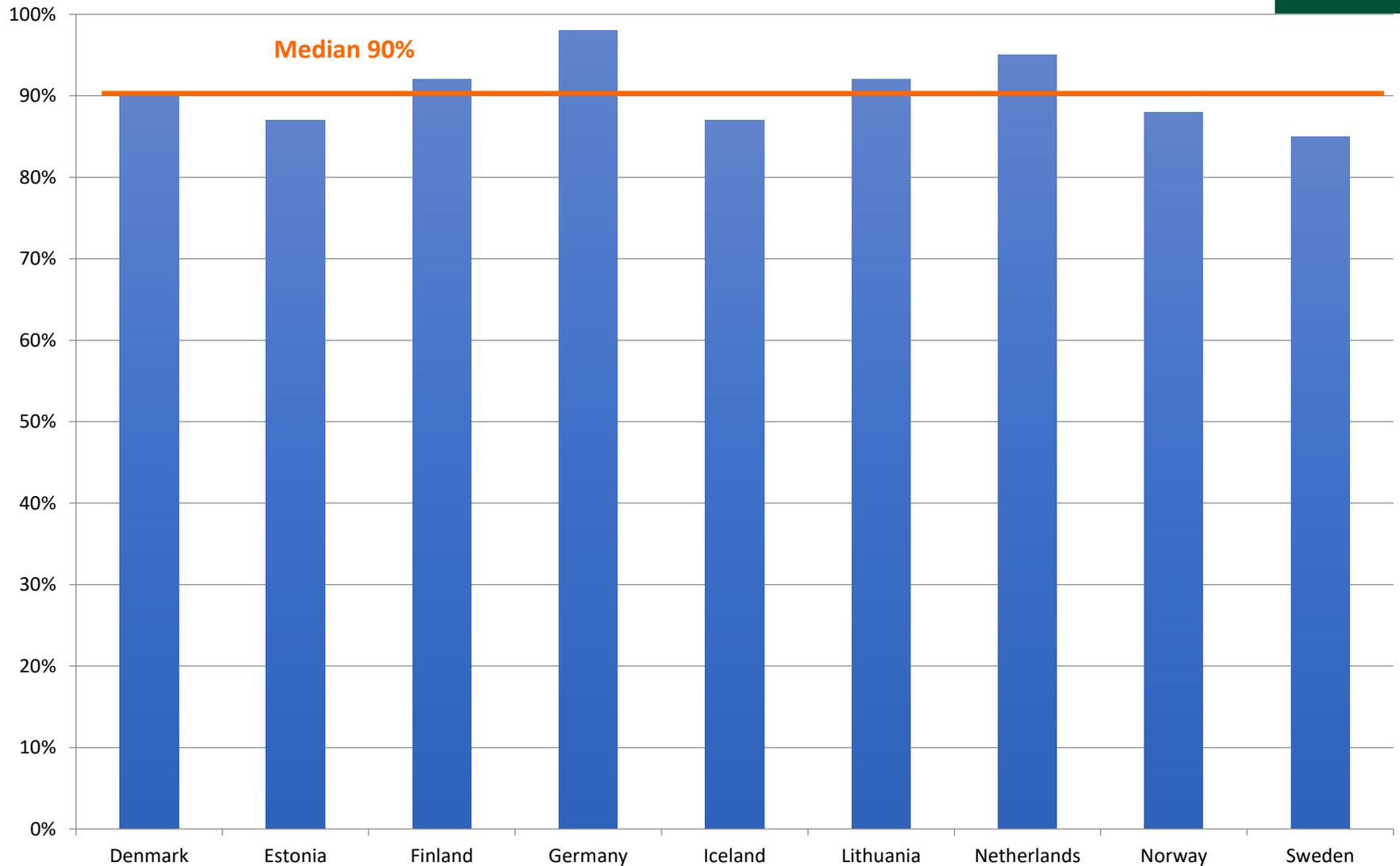
Respondents from system operators in Norway, Estonia, Lithuania, Oregon.

The German Packaging Institute GVM did a short study/analysis on the cap topic, commissioned by IK Industrieverband Kunststoffverpackungen e.V.



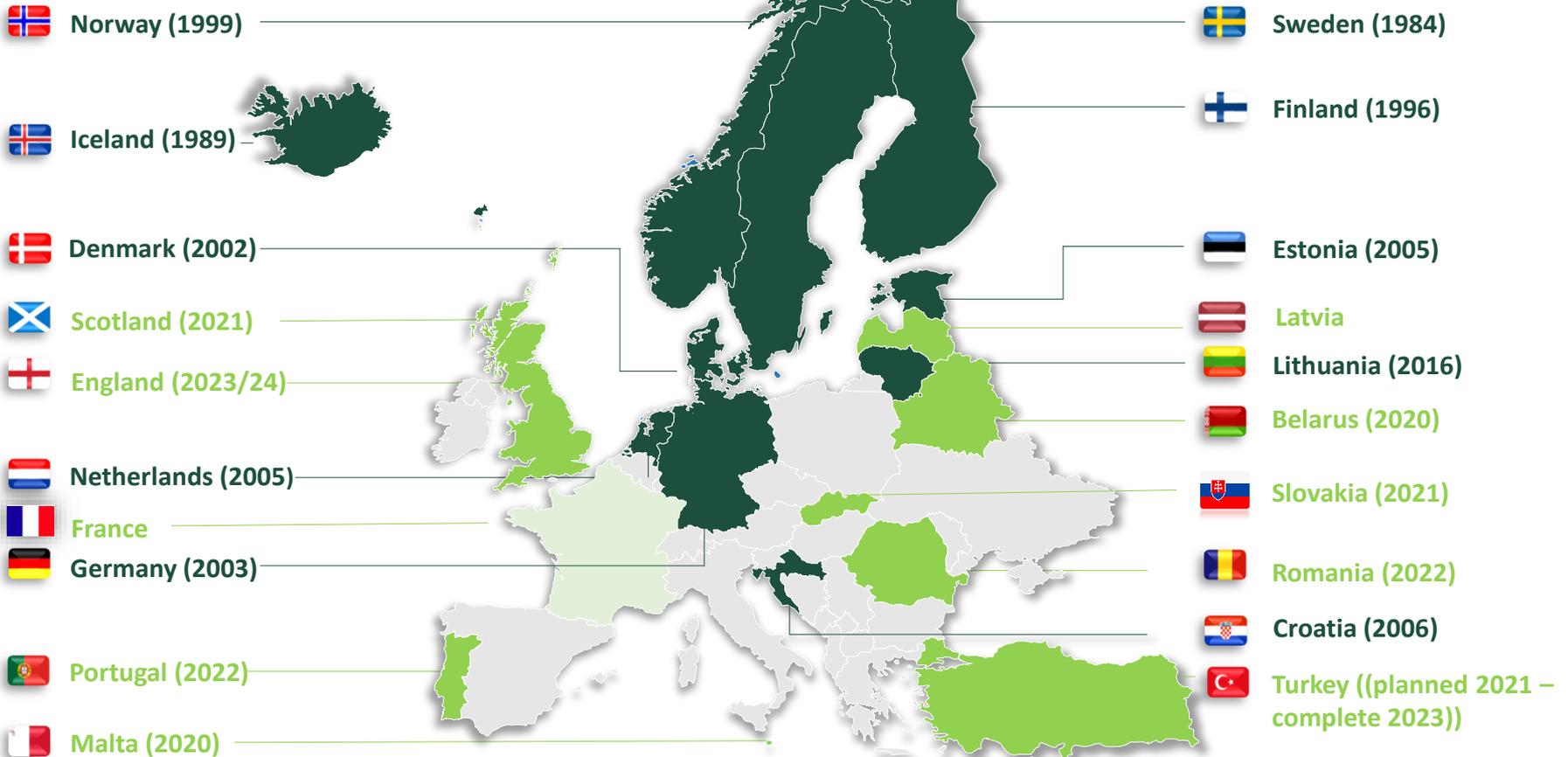
Global DRS Update

Plastic Bottle Return/Recycling Rate in 9 European Countries with Deposit Return



Deposit systems in Europe

Deposit return systems in operation and **planned**



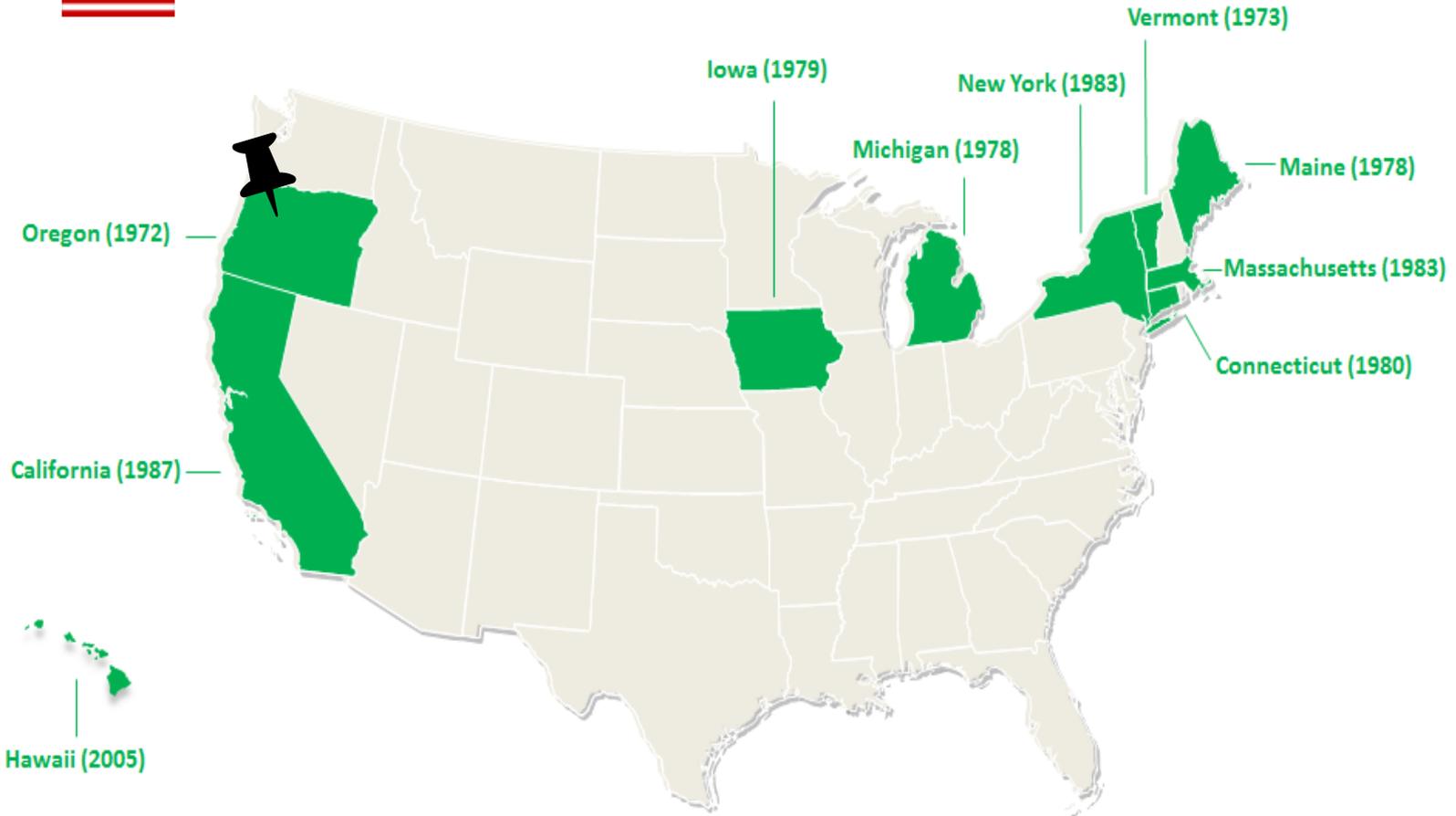
More and more countries implement deposit schemes. At least for one way PET and cans.

DRS Action Across the Globe

- The latest jurisdiction to implement a DRS was
- **NEW SOUTH WALES**, DECEMBER 1, 2017
- **QUEENSLAND**, NOVEMBER 1, 2018
- **WESTERN AUSTRALIA**, EXPECTED BY 2020
- **VICTORIA**, LIKELY BY 2021.

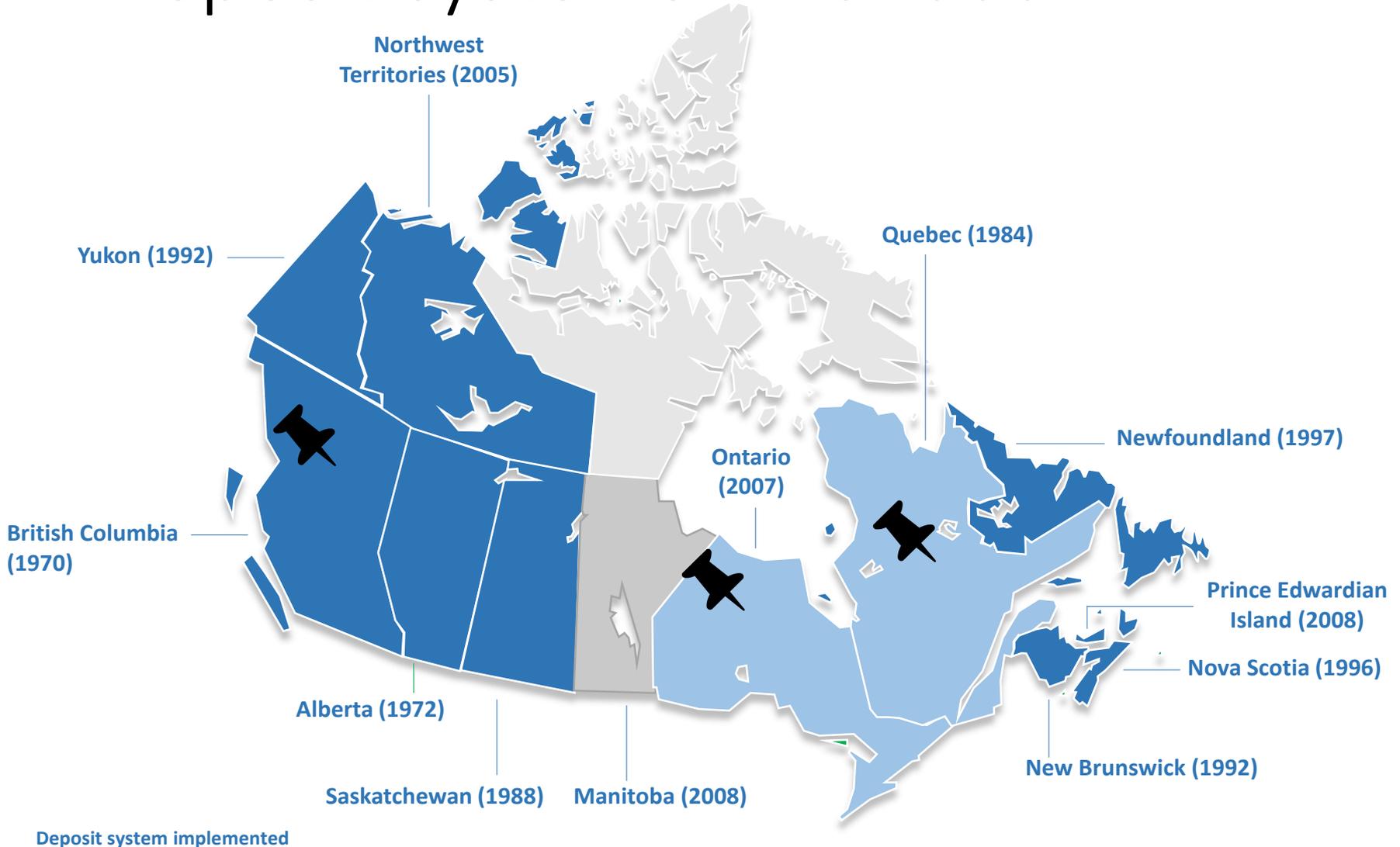


USA





Deposit systems – Canada





How will a DRS for non-alcoholic beverage containers affect Ontario's Blue Box system?

Reduction in Cost/Tonne

- Operating an optimized Blue Box program alongside a deposit program not only increases the amount of material collected for recycling or diverted from landfill, the cost per tonne of material recycled actually goes down from \$313 to \$273.
- The system will also be pulling material out of the residual waste stream resulting in savings in disposal costs to municipalities, and capture material that is consumed in restaurants and hotels.

Activity	Cost of Current Service (\$M)	Cost of Future Service (with move to bi-weekly curbside)	Change (\$M)
		(\$M)	
Cost of recycling collection	186.17	156.80	-29.36
Cost of recycling treatment	115.41	112.55	-2.85
Cost of transfer (recycling only)	27.02	26.35	-0.67
Other costs (promotions, administration of Blue Box etc.)	25.76	25.12	-0.64
Material revenue	-96.37	-86.34	10.03
Cost of residual collection (% of costs associated with PPP)	24.60	15.90	-8.70
Cost of residual disposal (% of total cost associated with PPP)	30.36	23.01	-7.36
Curbside Subtotal	312.94	273.39	-39.55

Employment Impacts

- Optimizing the Blue Box program and adding a DRS for non-alcoholic containers will add about 1,500 jobs to Ontario overall.

Job Activity	Number of Jobs Created by Current Blue Box Program	Number of Jobs Created by Proposed Program
Subtotal Curbside	7,105	6,851
Subtotal DRS	-	1,095
Total Direct	7,105	7,946
Total Indirect and Induced	5,471	6,118
Total Direct, Indirect and Induced	12,576	14,064



What about the administrative burden associated with DRS?

- DRS administration is **no more onerous** than an existing stewardship program.
- Probably less so due to the **simplicity of reporting in units sold (not weight)** and regular automated processes, which do not require costly characterization analysis.
- Best in class systems will also require **design guidance** for producers.

PET BOTTLES

Norway DRS design requirements for all producers in the DRS.

NO

CAP

- Thermoset PS
- PVC
- Metal

LINER MATERIAL AND ADDITIONAL SEALING

- PVC
- Metal
- Silicone

BOTTLE

- Other than A-PET

BARRIER

- Coating
- Scavengers
- Additives

LABEL & GLUE

- PVC
- PET
- OPS
- Self-adhesives (under conditions)
- Hot-Melt
- Heavy metal inks

YES

CAP

- HDPE
- PP

LINER MATERIAL AND ADDITIONAL SEALING

- PE
- EVA

BOTTLE

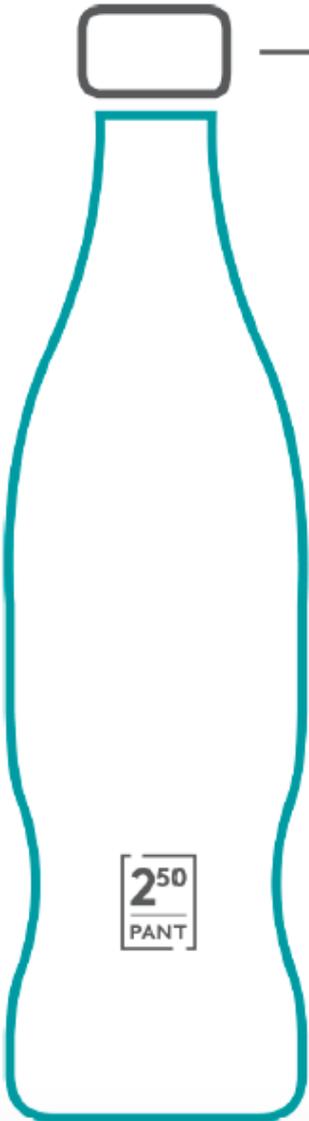
- A-PET

BARRIER

- Glaskin
- Bestpet

LABEL & GLUE

- Paper
- OPP
- Density lower than 1
- Water solvent glue (60°C)
- Recyclable HotMelt



Costs for DRS for Non-Alcoholic Beverages

	Total Cost (\$M)	Cost per Container Redeemed (¢)
Producer Responsibility Organization	9.73	0.26
Handling Fees - Retailers, Redemption Centres, Bag Drops	93.96	2.49
Transport Costs	44.89	1.19
Counting Centre Costs	12.38	0.33
Materials Income	-63.35	-1.68
Unclaimed Deposits	-68.81	-1.82
Fraudulently Claimed Deposits	5.67	0.15
Net Cost (Producer Administration Fee)	34.48	0.91



What are the opportunities & risks for private sector waste management companies related to DRS?

- There is increased volume of material requiring collection, processing and recycling.
- "Counting" containers, which is different to MRF operation, will be required in Ontario as well.
- Smart transitioning by acknowledging greater coverage of EPR system (more operations to manage)
- Taking advantage of (redeeming) deposit bearing containers (\$\$!) that end up in MRFs.



What new infrastructure is needed for DRS?

Consolidation and Counting Centres	3
Retail Stores, Manual Collection	1,356
Retail Stores, Automated Collection: Reverse Vending Machines (RVMs)	1,241
Dedicated Redemption Centres (Depots)	58
Bag Drops	240
Total	2,898



Why are producers changing position on DRS?



FIVE reasons producers are changing their mind about DRS



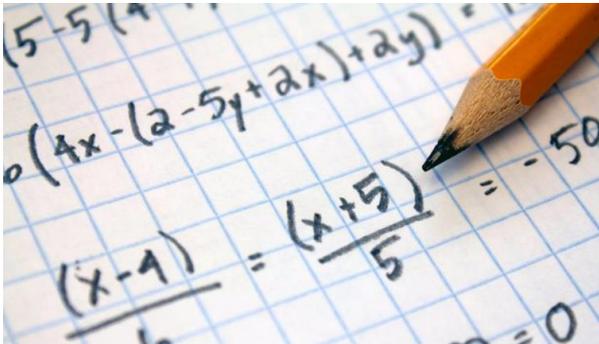
- 1.** Rising share of **financial obligation** for producers with greater EPR minimum requirements and litter clean up costs.

- 2.** Increasing need for **access to post consumer resin** to meet national recycled-content mandates. 25% recycled plastic by 2025, and 30% by 2030. (By EU member state)

3. Higher targets for PET Recycling



4. New Recycling Calculation



5. More pressure around plastics in the marine environment & litter





How is technology changing DRS?

- Reverse Vending technology is improving –speed, compaction, smaller machine footprints, lower prices & competition.
- Counting Technology – Improved optical sorting, counting centre configuration for maximum recovery efficiency including labels and caps. Faster, cheaper, better centralized counting for manual return and drop offs.
- Bar code recognition and unique coding offers a variety of opportunities for non-traditional deposit items



What are other DRS applications?

- Reusable transport packaging items
- Special waste containers/products
- To-go packaging
- Fishing nets and boxes
- Standard reusables (pooled & share assets)



What advice do you have for jurisdictions with limited DRS or who might be looking to modernize DRS?

- ✓ Legislation that is **not overly prescriptive** on process, with the focus on outcomes
- ✓ Deposit level **must be high enough** to incentivize collection.
- ✓ **Centrally reported** sales data by size and material type. Producers, distributors and retailers are given the shared responsibility for meeting the requirements of the legislation
- ✓ **Convenient collection** points / **no extra trips** minimal extra time to redeem containers.
- ✓ **Modern** data management system (Bar code recognition / on-site compaction).
- ✓ **Compatibility** with other stewardship programs.



Success or failure of Producer Responsibility Organization and DRS

The PRO is responsible for:

- ✓ The **operational aspects** of discharging producers' responsibilities under law;
- ✓ Procurement and **commissioning of services** such as the transport of containers from redemption locations to counting houses, and provision of reverse vending machines (RVMs);
- ✓ Demonstrating that **mandatory recycling targets** are met on behalf of their members;
- ✓ Delivering **cost efficiency**; and
- ✓ Putting in place measures to **mitigate fraud**

THANK YOU!

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