FINAL REGULATORY IMPACT ASSESSMENT REPORT

on the draft act amending Act No 477/2001 on packaging and amending certain acts (the Packaging Act), as amended, and other related acts

Ministry of the Environment

2024

FINAL REGULATORY IMPACT ASSESSMENT REPORT

REGULATORY IMPACT ASSESSMENT (RIA) – FINAL REPORT SUMMARY

1. Basic identification data

Title of the draft: Act amending Act No 477/2001 on packaging and amending certain acts (the Packaging Act), as amended, and other related acts

Author/representative of the submitter:	Expected effective date:
Ministry of the Environment	01 January 2026

Implementation of EU law: ☒ YES ☐ NO. Draft

- deadline set for implementation: European legislation is now in the stage of text approved by the European Parliament, the Council, and the European Commission and is undergoing linguistic and legal scrutiny

- whether the draft is beyond the scope of requirements stipulated by EU legislation: ☒ YES ☐ NO

2. Objective of the draft act

The objective of the draft act is

- saving primary raw materials;
- reducing the amount of municipal waste landfilled or used for energy recovery;
- ensuring the circularity of selected packaging through the enhancement of separate collection and preparation of used packaging for recycling;
- reducing environmental pollution (littering).

The main objective of the draft is to ensure compliance with the objectives arising from and expected in EU legislation on beverage packaging, to reduce the production of paper waste from advertising flyers, and to introduce targets for the collection and recycling of beverage cartons.

The draft contains the following key measures:

- an increase in registration fees for producers placing packaging materials on the market;
- introduction of a mandatory deposit system for plastic beverage bottles and metal beverage containers;
- including the placing on the market of advertising flyers (printing and distribution, import, etc.) in a collective system (within an authorised packaging company), i.e. introducing a fee through a collective system to cover the costs of collecting and disposing of flyers by municipalities;
- Introduction of collection and recycling targets for carton containers under the extended producer responsibility scheme (through an authorised packaging company), similar to other packaging.

Plastic beverage containers and metal beverage containers

- ensuring the achievement of the 2029 target of Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment (achieving the 90% target for separate collection and recycling of plastic beverage packaging);
- ensuring the achievement of the 2030 target of Directive (EU) 2018/852 on packaging and

packaging waste (achieving a 60% aluminium recycling rate);

- ensuring compliance with the Packaging and Packaging Waste Regulation (PPWR), which has not yet been adopted but is already at the stage of legislative technical corrections, the provisions—obligations and targets from a substantive point of view—are already closed in the EU legislative process. The draft regulation includes the obligation for Member States to introduce a deposit system for beverage packaging by 2029. A derogation from the obligation to set up a deposit scheme may be requested if a separate collection rate for such packaging above 80% is achieved in 2026 and the trajectory to meet the 90% target in 2029 is demonstrated. The targets apply to both plastic beverage bottles and metal beverage containers.
- prevention of packaging materials – reducing the consumption of packaging products and motivating consumers to use packaging-free alternatives;
- introduction of a deposit for plastic beverage containers (mostly PET bottles) and metal beverage containers (cans), i.e. ensuring the circularity of food-grade packaging material in accordance with the bottle-to-bottle, can-to-can principle;
- diverting part of plastic beverage bottles and metal beverage containers from mixed and sorted municipal waste due to the need to ensure the quality and purity of the material for more efficient recycling;
- reducing the consumption of primary resources for the production of plastic packaging and metal beverage containers;
- PET down-cycling prevention in recycling sectors where high material quality is not required;
- Prevention of littering of plastic packaging and metal beverage containers.

Paper advertising – flyers

- reduction in the paper production of advertising flyers and the related environmental burden (consumption of materials, littering);
- compensation for the costs incurred by municipalities in cleaning up flyers that are not disposed of in separate municipal waste;
- reducing the costs for municipalities of disposing of flyers ending up in sorted waste.

Beverage cartons

- increasing the collection and recycling of beverage cartons by setting collection and recycling targets similar to those for other packaging.

3. Aggregate impacts of the draft act

3.1 Impacts on the national budget and other public budgets: ☒ YES ☐ NO

Packaging registration fees

- increase in income from fees for maintaining records (obligation to be registered with collective systems, or with the Ministry of the Environment in case of non-involvement of the producer in collective systems) of persons placing packaging materials on the market in the amount of approximately CZK 48 million annually compared to the current CZK 17 million annually. At the same time, revenues are divided equally between the SEF (State Environmental Fund) and the state budget (currently, revenues are entirely the income of the SEF).

Plastic beverage containers and metal beverage containers

- MoE – possible revenues from unreturned deposits in case of non-fulfilment of set targets, up to CZK 650 million annually in the event of failure to meet the objectives of sorting plastic beverage

bottles and metal beverage containers on the part of the Operator,

- MIT – a one-off consultation linked to the Operator's authorisation, within existing capacities;
- CEI – slight increase in inspections, within existing capacities;
- CTIA – estimated costs associated with the extension of the CTIA's supervisory scope, increase by up to 4 full-time equivalents (CZK 3.1 million annually);
- provision of the agenda associated with backup on the part of the Ministry of the Environment, an increase of up to 3 positions (CZK 3.9 million annually);

Expenditures for managing the agenda by the Ministry of the Environment and the Ministry of Industry and Trade (CTIA) amounting to approximately CZK 7 million annually will be the subject of subsequent negotiations during the preparation of the Act on the State Budget, but they are covered as part of the proposal by the state budget income from registration fees (approximately CZK 24 million annually).

Paper advertising – flyers

- without any direct impact on the state budget.

Beverage cartons

- without any direct impact on the state budget.

3.2 Impacts on international competitiveness of the Czech Republic: ☒ YES ☐ NO

The circular economy represents a more efficient use of resources and is becoming one of the aspects of competitiveness that will intensify in the future. Setting up material and financial flows in a circular economy will encourage the market to initiate innovative solutions.

The introduction of deposit systems and ensuring the circularity of plastic beverage bottles and metal beverage containers will have positive impacts on the ESG rating of entrepreneurs in the Czech Republic and the availability of commercial financing.

3.3 Impacts on the business environment: ☒ YES ☐ NO

Plastic beverage containers and metal beverage containers

- producers and distributors of packaged goods
    - an increase in APC fees for packaging other than plastic beverage bottles and metal beverage containers up to 18%;
    - fees to the Operator, payment of approximately CZK 1.7 billion per in handling fees for sellers;
    - costs of changing and marking packaging, approximately CZK 64 million ;
    - registration fees CZK 48 million annually;
- collection companies
    - increase in collections for approximately 11,000 locations for returnable packaging (less in reverse collection), with a cumulative legally induced transport value of approximately CZK 760 million annually;
- sorting lines (operated by various entities)
    - the need to establish one sorting line for returnable packaging for approximately CZK 300 million, or modernisation of existing;

- the planned upgrade of existing sorting lines (today 125 sorting lines, of which 3 are automated) will not be affected by the proposal, the deposit scheme will not affect the need to sort other impact segments, but the economics of sorting operations can no longer be based exclusively on PET;

- producers using recycled PET (rPET), aluminium and metals for their production
  - the introduction of a deposit scheme will ensure down-cycling at a very low rate, i.e. enough PET recycled material in the Czech Republic to meet the target of a mandatory share of PET recycled material in bottles placed on the market without the need to import rPET. It is assumed that the mandatory target will be met despite its increase according to EU legislation in 2030.

- commercial companies
  - 5.8 billion establishment of infrastructure for a deposit system separate from sorted collection for 11,000 locations;
  - operating costs of CZK 1.7 billion annually paid through the handling fee (borne by producers);
  - Note that it is also possible to assume the costs associated with aligning with the existing version of the Act regarding the obligation to ensure separate collection within their premises;

- employers
  - in the event of forfeiture of the deposit from the employer's perspective, particularly in the agriculture, mining, construction, and transport sectors, this may amount to a maximum of CZK 770 million annually;
  - Note that it is also possible to assume the costs associated with aligning with the existing version of the Act regarding the obligation to ensure separate collection within their premises;

- sports and cultural institutions
  - ***o*** reduction of cleaning and disposal costs, costs associated with deposits (return of beverage containers).

Paper advertising – flyers

- Printers and distributors
  - increased costs of printing and distributing flyers;
  - a decline in orders for the printing of flyers may represent a decline in revenue;

- Commercial companies
  - Reducing paper flyers represents a reduction in printing and distribution costs, but also limits marketing tricks to attract customers.

Beverage cartons

- ***Beverage carton manufacturers***
  - We expect a slight increase in the administrative burden associated with reporting on the quantity of beverage cartons on the market, as there is currently reporting on a component-by-component basis, which will also be retained;
  - the increase in targets also entails higher collection and recycling costs for municipalities, which may ultimately be reflected in APC fees; according to the consultations, producers

are aware of this.

- ***Beverage carton recycling companies***
    - we expect an increase in demand for recycling capacity, which, according to consultations, is currently sufficient in the Czech Republic (Milevsko, Sokolov).

3.4 Territorial impacts, including impacts on local and regional authorities: ☒ YES ☐ NO

Plastic beverage containers and metal beverage containers

- economy of municipal waste management
    - municipalities currently cover 40-50% of the costs of municipal waste collection from sources other than the fees collected from citizens for waste collection and disposal, but the draft does not represent a need for municipalities to increase these fees;
    - APC covers approximately two-thirds of the municipal costs for separate collection. The loss of revenue from PET in the APC system will be offset by increasing fees for producers, without affecting municipalities;
    - municipalities will receive income from 15% of uncollected deposits from the Operator;
- reducing the proportion of plastic beverage and metal beverage containers in mixed municipal waste
    - a reduction from the current level of by 20% to a maximum of 10% of plastic beverage bottles in mixed municipal waste, a gradual reduction of metal beverage containers in mixed municipal waste from the current level of up to 66% to up to 10%, i.e. a reduction in the cost of landfilling mixed municipal waste that is uncompensated from APC;
- projected investments
    - investments in the expansion of the existing system are expected to amount to approximately CZK 2 billion according to the current plans of municipalities, the introduction of the deposit will not affect the necessity and usability of these capacities, although it will be necessary to base them on economics other than solely on the revenues arising from PET;
    - costs of installing reverse vending machines in municipalities with over 300 inhabitants without a shop (on a voluntary basis);
- littering costs
    - reducing littering from plastic beverage bottles and metal beverage containers to a minimum;
- construction proceedings
    - costs of administration of construction proceedings (installation of reverse vending machines) approximately CZK 3.6 to 5.4 million (overall).

Paper advertising – flyers

- reduction of the costs of collection and disposal of flyers within the separate collection of municipalities according to the polluter pays principle, whereby producers will be required to pay fees for collection, transport, and other handling, as is the case with other packaging materials. Municipalities within the collective system will thus receive a contribution for collection and transport (estimated up to CZK 176 million per year for all municipalities);

- reducing the cost of disposing of flyers discarded outside the system (on the streets, etc.).

Beverage cartons

- increase in municipal costs for the collection and transport of beverage cartons by about 40-50% from the original CZK 85 million per year to an estimated CZK 130-150 million per year, which should be covered within the collective system. However, the total price is influenced by the resulting quantity and the costs of disposal of mixed municipal waste, the costs of collection and sorting, and the current prices and demand for individual raw materials.

3.5 Social impacts: ☒ YES ☐ NO

Plastic beverage containers and metal beverage containers

- employment
    - demand for office workers, drivers, and other blue-collar professions
- impacts on local fees for waste collection and transport
    - impacts on local charges are not foreseen (deposit costs are borne primarily by manufacturers and sellers);
    - significant and quantifiable impacts on household incomes are not foreseen (including through cost pass-through to product prices or changes in local fees for municipal waste collection and transport);

Paper advertising – flyers

- the function of flyers has a dual nature, but it always concerns business profits:
    - lower prices of certain goods, which, thanks to large quantities, the trader purchased at a very low price, but conversely expects the customer to take home something else as well;
    - the use of flyers in the case of people who do not have access to the on-line world to offer products that may seem like a bargain, but the opposite may be true.

Beverage cartons

- In the Czech Republic, there are recycling lines in Milevsko and Sokolov. With an increase in recycling targets, we expect an increase in the utilisation of these two entities and thus the creation of jobs in Sokolov (unemployment 4.6%) and Milevsko (unemployment 2.7%) in recycling facilities.

3.6 Impacts on families: ☐ YES ☒ NO

7. Impacts on consumers: ☒ YES ☐ NO

Plastic beverage containers and metal beverage containers

- the need for change in consumer handling of returnable packaging is foreseen;
- the draft poses certain hygiene risks for collectors of discarded returnable packaging – the socially deprived;

Paper advertising – flyers

- the function of flyers has a dual nature, but it always concerns business profits:
    - lower prices of certain goods, which, thanks to large quantities, the trader purchased at a

very low price, but conversely expects the customer to take home something else as well;

- the use of flyers in the case of people who do not have access to the on-line world to offer products that may seem like a bargain, but the opposite may be true.

Beverage cartons

- We can expect a slight increase in the prices of products in beverage cartons. We assume that the costs will be passed on to consumers (as is the case with electrical appliances, etc.).

3.8 Environmental impacts: ☒ YES ☐ NO

Plastic beverage containers and metal beverage containers

- Collection of plastic beverage packaging (EU legislation targets)[1]
  - by 2025 (SUPD) 77% - likely to meet the SUPD target;
  - introduce a deposit for beverage plastic packaging from 2029, with an exception if more than 80% is sorted in 2026 - likely to meet the PPWR target;
  - by 2029 (SUPD, PPWR) sorting of at least 90% of beverage plastic packaging – likely to achieve the SUPD, PPWR target.
- Collection of metal beverage packaging (EU legislation targets)[2]
  - Introduce a deposit system for beverage metal packaging from 2029, with an exception if more than 80% is sorted in 2026 - likely failure to meet the PPWR target (due to the need to substantially increase the collection rate from 20-30% to 80% within 1 year from the introduction of the deposit system);
  - by 2029 (PPWR) sorting of at least 90% of beverage metal packaging – possible achievement of the PPWR target.
- Percentage of recycled plastics in PET bottles[3]
  - 25% from 2025 (SUPD), 30% from 2030 (SUPD, PPWR), 65% from 2040 (PPWR) – the draft will ensure that down-cycling occurs only at a very low rate, i.e., there will be sufficient rPET in the Czech Republic to meet the target (without the need to import rPET), ensuring compliance with the mandatory target despite its increase over time.
- Recycling of plastic[4]
  - by 2025 (94/62, PPWR) 50% - certain achievement of the target (94/62, PPWR);
  - by 2030 (94/62, PPWR) 55% - certain achievement of the target (94/62, PPWR).
- Recycling of aluminium[5]
  - by 2025 (94/62, PPWR) 50% - persistent risk of non-compliance (94/62, PPWR);
  - by 2030 (94/62, PPWR) 60% - possible target achievement (94/62, PPWR).
- Saving primary materials, reducing carbon footprint
  - The packaging sector will contribute to climate protection targets and energy savings (through the avoidance of down-cycling and high recycling rates of materials that have

[1] weight placed on the market or put into circulation in the given calendar year
[2] weight placed on the market or put into circulation in the given calendar year
[3] each plastic beverage bottle with a volume of up to 3 litres
[4] weight of plastic packaging waste
[5] weight of aluminium packaging waste

most of the carbon footprint in production from primary raw materials).

- Prevention of littering of beverage containers, overall waste reduction
    - a slight decrease in the growth trend of plastic and aluminium packaging waste volumes;
    - some reduction in littering (minimisation for returnable packaging).
- Ensuring the purity of recycled material from waste beverage packaging
    - The draft will ensure down-cycling only to a very low extent (a deposit as a financial incentive for consumer sorting, separating plastic beverage bottles and metal beverage packaging from other plastic waste will ensure material purity to facilitate recycling).

Paper advertising – flyers

- Reduction of paper production for advertising flyers and related savings of primary resources (paper, ink, water, energy associated with printing, etc.)
- reducing environmental pollution from discarded flyers (littering).

Beverage cartons

- every year, 13,125 tonnes of high-quality paper, 3500 tonnes of plastic and 875 tonnes of aluminium are placed on the market. We expect to increase the sorting of cardboard packaging from today's 26% to double that, which should lead to higher recycling and thus savings of primary resources
- reduction of landfilling and incineration of cartons.

3.9 Impacts related to non-discrimination and gender equality: ☒ YES ☐ NO

The draft only represents impacts related to the integration of men and women into the labour market in specific positions (administration, technical positions, etc.).

3.10 Impacts on the performance of the state statistical service: ☐ YES ☒ NO

3.11 Corruption risks: ☒ YES ☐ NO

Plastic beverage containers and metal beverage containers

- The operator is a joint-stock company authorised by the MoE to fulfil the obligations of other producers; corruption risks during authorisation were identified. It is possible to file an administrative appeal against the authorisation, as well as a review within the administrative justice system.
- Corruption risks associated with the setting of fees for manufacturers were identified in the Operator's operations. Nevertheless, the draft stipulates that tariffs must be published and the terms of contracts must be established uniformly for all producers, so that no entity or type of packaging is unjustifiably placed at a competitive disadvantage. Breaches of these obligations constitute an infraction by an authorised company, for which remedial measures and a fine may be imposed.

Paper advertising – flyers

- Corruption risks have been identified in setting fees for obliged entities. The Packaging Act provides that the tariffs are published and the terms of the contracts are established uniformly for all producers, ensuring that no person or any type of flyer is unjustifiably disadvantaged in competition. Infringement of these obligations constitutes an offence by an authorised company, for which remedial measures and a fine may be imposed.

Beverage cartons

- No corruption risks were identified.

3.12 Impacts on national security or defence: ☐ YES ☒ NO

Content

1 Recycling and sorting of municipal waste in the context of selected products (plastic beverage bottles, metal beverage containers)

1.1 Definition of the issue

The definition of the issue is divided into individual sub-issues derived from the generally applicable principles of circular economy and waste management. Waste management policy and regulation priorities are based on the waste hierarchy, according to which the priority is waste prevention, and if waste cannot be prevented, then in the following order: preparing for re-use, recycling, other recovery, including energy recovery, and, where this is not possible, disposal.

The issues addressed by the draft reflect the development of EU legislation regulating the issue of packaging, specifically the product group of plastic beverage bottles and metal beverage packaging. Packaging is subject to significant economic activity: packaging production in the EU reached a turnover of EUR 355 billion in 2018, and waste management operators a turnover of EUR 15 billion. Packaging in the EU also has a significant environmental impact, whether it is the over-exploitation of resources, pollution of ecosystems, or greenhouse gas emissions corresponding to the total annual emissions in Hungary.

According to the impact assessment for the new EU Packaging Regulation, the measures taken by Member States under the current Packaging and Packaging Waste Directive, as well as the measures taken under the Own Resources Decision or the Single-Use Plastics Directive, will not suffice for them to meet all specific recycling rate targets set out in the Packaging and Packaging Waste Directive. The EU packaging and waste management market is in many respects one large common market, not 27 separate markets, and is characterised by a large volume of cross-border trade between Member States.[6]

1.1.1 Promoting the circular economy, saving primary materials, reducing the carbon footprint

Evolving packaging material targets in EU legislation

Article 9 of Directive 2019/904 of 5 June 2019 on the reduction of the impact of certain plastic products on the environment (‘Directive 2019/904’ or ‘SUPD’) sets targets for the separate collection for recycling of plastic beverage bottles of up to three litres. The obligation to achieve a collection rate of at least 77% by weight of such packaging from 1 January 2025 and at least 90% by weight of such packaging placed on the market or put into circulation in a given calendar year from 1 January 2029 was imposed, as part of the transposition of this Directive [§ 10(5) of the Packaging Act], on persons placing such packaging on the market or putting it into circulation, similarly to the targets for the recovery of packaging waste in the applicable Packaging Act.

Furthermore, there is an obligation under Article 6(5) of Directive 2019/904 (SUPD), according to which beverage bottles of up to three litres made from polyethylene terephthalate as the main component (PET bottles) must contain at least 25% recycled

[6] https://environment.ec.europa.eu/publications/proposal-packaging-and-packaging-waste_en

plastic from 2025, and all plastic beverage bottles of up to three litres must contain at least 30% recycled plastic from 2030 onwards. This obligation regarding recycled plastic content is transposed in § 12a of the Packaging Act. However, it is essential to have enough recycled food-grade PET; see the specific problem in Chapter 1.1.2 on ensuring the purity of the recycled material.

In parallel, a proposal for a Regulation on packaging and packaging waste (Regulation of the European Parliament and of the Council on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC, so-called 'PPWR') is under discussion in the EU, creating additional challenges for Member States, including in achieving a collection rate for beverage plastic bottles and metal beverage containers, with the proposed Regulation requiring Member States to reach 90% by 1 January 2029. In order to achieve these objectives, Member States are to establish a deposit-refund system. Member States may be granted an exemption from the obligation to establish a deposit-refund system only if the level of separate collection of the relevant packaging format (type of packaging) notified to the Commission is higher than 80% by weight of the packaging concerned first placed on the market in the territory of that Member State in the calendar year 2026. The targets should be met for plastic beverage bottles and metal beverage containers separately.

A fundamental element in the development of EU legislation is also the new methodology for accounting for meeting the targets only for packaging that is separated from mixed municipal waste.

Table 1: Overview of targets according to EU legislation

<table>
<tr><th>Overview of targets according to EU legislation</th><th>Directive 94/62/EC on packaging</th><th colspan="2">Directive 2019/904 on single-use plastics (SUPD)</th><th colspan="2">Draft Packaging and Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging)</th></tr>
<tr><td rowspan="2">Collection of plastic beverage packaging (weight placed on the market or put into circulation in a given calendar year)</td><td rowspan="2">not defined</td><td>by 2025</td><td>77%</td><td>by 2026</td><td>introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted</td></tr>
<tr><td>by 2029</td><td>90%</td><td>by 2029</td><td>Introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted</td></tr>
<tr><td rowspan="2">Collection of metal beverage packaging (weight placed on the market or put into circulation in a given calendar year)</td><td colspan="3" rowspan="2">not defined</td><td>by 2026</td><td>introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted</td></tr>
<tr><td>by 2029</td><td>introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted</td></tr>
</table>

Proportion of recycled plastics in PET bottles (each plastic beverage bottle with a capacity of up to 3 litres)	not defined	from 2025	**25%**	not defined	
		from 2030	**30%**	from 2030 onwards	**30%**
		not defined		from 2040 onwards	**65%**
Percentage of recycled metals in metal beverage containers	not defined				
Recycling of plastics (weight of plastic packaging waste)	by 2025	50%	not defined	by 2025	**50%**
	by 2030	55%		by 2030	55%
Recycling of aluminium (weight of aluminium packaging waste)	by 2025	50%	not defined	by 2025	50%
	by 2030	60%		by 2030	60%

Context of the Czech Republic – PET bottles and plastic beverage containers

Approximately 1.8 billion PET bottles (approximately 47,000 t) are placed on the market annually, where:

- in 2021, a total of 52,000 tonnes of plastic beverage bottles with a capacity of up to three litres, including their caps and lids, were placed on the domestic market, with a total of 40,000–40,800 tonnes of such packaging taken back that year (i.e. 77–79%).
- In 2021, a total of 48,000 tonnes of beverage PET packaging were placed on the domestic market, with a total of 38,500–40,000 tonnes of such packaging taken back that year (i.e. 80–83%). When comparing the results of the analysis of the quantities of beverage PET bottles placed on the domestic market and their collection for the period 2016–2021, it can be noted that the ratio of the recovered beverage PET bottles relative to the total quantity of beverage PET bottles placed on the domestic market, which was at 78–81% in 2016–2018 and at 79–82% in 2019–2020, increased to 80–83% in 2021.[7]
- PET bottles account for about 25% of the volume of waste discarded in yellow containers.

Although the Czech Republic has a highly developed waste sorting system, it does not yet ensure sufficient market conditions for the full circularity of several materials (recycling). The current functional system of separate collection of plastics through containers and bags in the Czech Republic achieves some of the best collection results in the EU – 75% of the population actively participates in sorting, with waste sorting focusing on various materials, including plastic beverage bottles and metal beverage containers. However, the quality of sorting these specific containers has its challenges.

In the area of food-grade recycled plastic, there is no system in the Czech Republic. As part of sorting, the growth curve of the municipal waste sorting rate is approaching its limits due to the inhomogeneity of the environment and the motivation of citizens (spatial constraints and

[7] according to the EY study conducted in 2022 for the authorised packaging company EKO-KOM, a.s.,

thus the lack of necessary containers at places of beverage consumption, and the motivation of consumers to sort waste and take it to the necessary containers). The sorting of waste into separate containers without economic motivation is thus gradually reaching its limits, both in terms of people's willingness to sort waste more and space constraints, i.e., in some places, it is no longer possible to place additional containers for sorting.

So far, about half of the plastic beverage bottles in the Czech Republic are not being recycled. Many plastic beverage bottles end up in mixed waste, landfills or incinerators. Efficient recycling of plastic bottles is therefore very limited and often depends on the purity and condition of the bottles when collected.

Context of the Czech Republic – metal beverage containers

Approximately 0.8 billion metal beverage containers (approximately 15,000 tonnes) are placed on the market every year. The rate of collection of aluminium waste from packaging has been stagnating for a long time and ranges between 20-30%, which may also be due to the increasing popularity of metal beverage containers among consumers, from the perspective of consumption method this type of container is increasingly in demand. The low collection rate of metal beverage containers for aluminium packaging waste results in only 26% being recycled in 2022, according to data from an authorised packaging company. Up to two-thirds of metal beverage containers end up in mixed municipal waste, while 56% of metal beverage containers placed on the market end up in landfill.[8]

Carbon footprint of plastic beverage bottles and aluminium beverage bottles

According to the Global Plastics Outlook Economic Drivers, Environmental Impacts and Policy Options study, the carbon footprint of the plastics life cycle is significant. Plastics have a significant carbon footprint during their life cycle and contribute to 3.4% of global greenhouse gas emissions. In 2019, plastics produced 1.8 billion tonnes of greenhouse gas emissions, with 90% coming from their production and conversion from fossil fuels. Establishing the circularity of materials could substantially reduce this footprint. Policies should aim to foster innovation for circularity in the life cycle of plastics. Innovation can bring significant environmental benefits – by reducing the amount of primary plastics needed, extending the lifespan of products and facilitating recycling. Patented environmental plastics technologies more than tripled between 1990 and 2017. Yet innovation in waste prevention and recycling accounts for only 1.2% of all plastic-related innovations. More ambitious policies are needed, including a combination of investments in innovation and interventions aimed at increasing demand for circular solutions while reducing overall plastic consumption.[9]

According to the OECD study entitled ‘Climate change and Plastics – Synergies between two crucial environmental challenges’, plastics produce greenhouse gas emissions throughout their life cycle, from their production, which mostly depends on fossil fuels transformed by energy-intensive processes, to their management as waste, which requires energy and generates direct emissions. Given the fossil origin of most plastics and the high energy consumption in refining, 90% of the greenhouse gas emissions from plastics can be attributed to the production and conversion phase. In 2019, total life-cycle greenhouse gas

[8] The Circular Economy Institute: Analysis of material flows of beverage cans and other aluminium packaging in the Czech Republic 2019

[9] https://www.oecd-ilibrary.org/environment/global-plastics-outlook_de747aef-en

emissions related to fossil-based plastics amounted to 1.8 gigatonnes of carbon dioxide equivalent ($GtCO_2e$), or 3.7% of global emissions. With the increasing use of plastics and waste, these emissions are projected to more than double by 2060, reaching 4.3 Gt CO_2 or 4.5% of global greenhouse gas emissions if no new policies are adopted. The impact of plastic leakage on greenhouse gases from self-degradation is not included in these estimates. However, recent research based on experimental data has estimated that environmental degradation and unsanitary landfilling lead to methane emissions of around 2 million metric tonnes (Mt) of CO_2e per year. In addition, with regard to greenhouse gas emissions from the use phase of products, plastics can contribute to the reduction of certain emissions due to their low weight, but can create additional environmental problems related to waste management.[10]

A large part of the waste from beverage packaging (plastic beverage bottles, metal beverage containers) that is sent to the packaging waste collection system in the Czech Republic is not recycled. Separation of packaging waste does not automatically imply recycling (the current recycling rate of packaging plastic waste in the Czech Republic is 46%, while for packaging waste from aluminium it is only 26%[11]). Full circularity has not been achieved for ether of these materials. Recycling takes place according to current demand. A very small part returns to the beverage industry, while the majority goes into products that can no longer be recycled at the end of their life cycle. For plastic beverage bottles, these are sanitary items, textile fibres, construction, household items (such as baby diapers, clothing, textile elements in the automotive industry).

In the case of aluminium, for example, this involves reagents for the production of steel. This leads to so-called down-cycling, which is characterized by lower recycling quality and a lower number of cycles that the recovered waste can undergo. The deposit system is intended to guarantee the recycling of packaging waste in food-grade quality, according to the so-called bottle-to-bottle, can-to-can principle (from a bottle to a bottle, from a metal beverage container to a metal beverage container), i.e. to sort and recycle packaging materials so that metal beverage containers become metal beverage containers again and plastic bottles become plastic bottles again.

The reuse of the material for the same purpose minimises its environmental impact. The production of both a metal beverage container and a plastic beverage bottle from recycled material has a 30-80% lower carbon footprint than the same packaging made from virgin material (depending on the recycling technology and the energy mix of electricity production in the country).[12] Beverage metal containers have the highest environmental impact (together with single-use glass beverage containers) in their life cycle as packaging in the feedstock production process.[13] This is because their production generates three times more waste than aluminium as such. Therefore, it is important to recycle them, which results in up to 95% energy savings.[14] The production of plastic beverage bottles from recycled materials consumes up to 79% less energy.[15]

[10] https://www.oecd-ilibrary.org/environment/climate-change-and-plastics_5e0bfe87-en
[11] Annual summary of the authorised packaging company EKO-KOM, a.s. for 2022
[12] Imperial College London: Examining Material Evidence. The Carbon Fingerprint
[13] LCA Studio: Comparison of life cycle environmental impacts of selected beverage containers
[14] European Aluminium: Recycling Aluminium. A pathway to a sustainable economy
[15] Franklin Associates: Life cycle impacts for postconsumer recycled resins: PET, HDPE, and PP

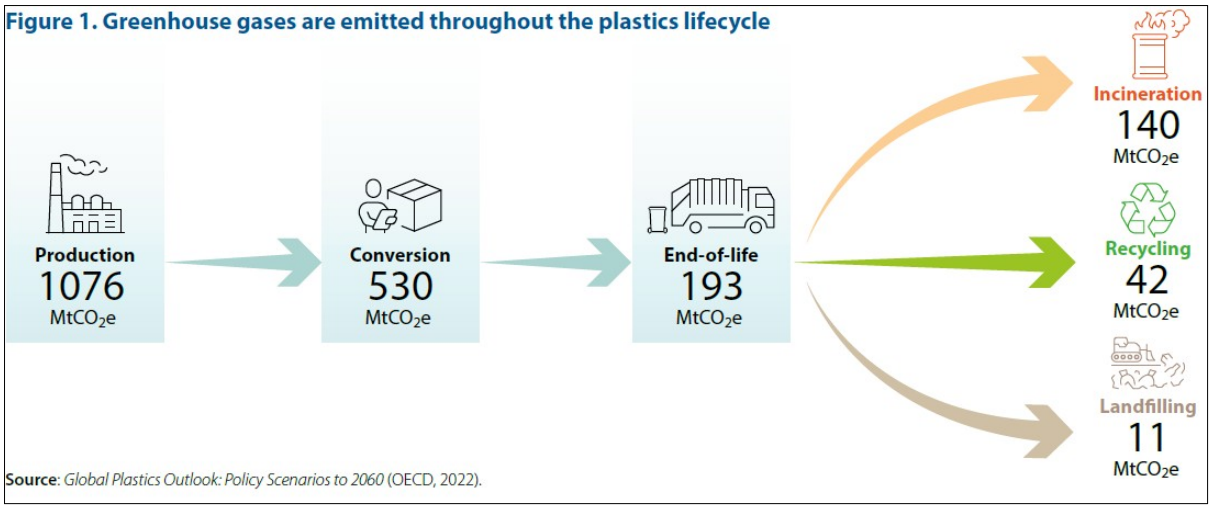


Figure 1: Greenhouse gases in the life cycle of plastics

It can be concluded that, although the methods for calculating the carbon footprint of PET and aluminium are methodologically different, they all come to the same conclusion – within the life cycle of these materials, their primary production has the most significant impact on greenhouse gas emissions, i.e. even if transport emissions increase in the case of repeated transport for reuse and recycling, this cannot outweigh the benefits of repeated recycling on the carbon footprint.

Reduction of greenhouse gas emissions by sector by 2030 compared to 2019 according to the update of the Czech Republic's National Energy and Climate Plan and Climate Protection Policy (2024) in the table below.

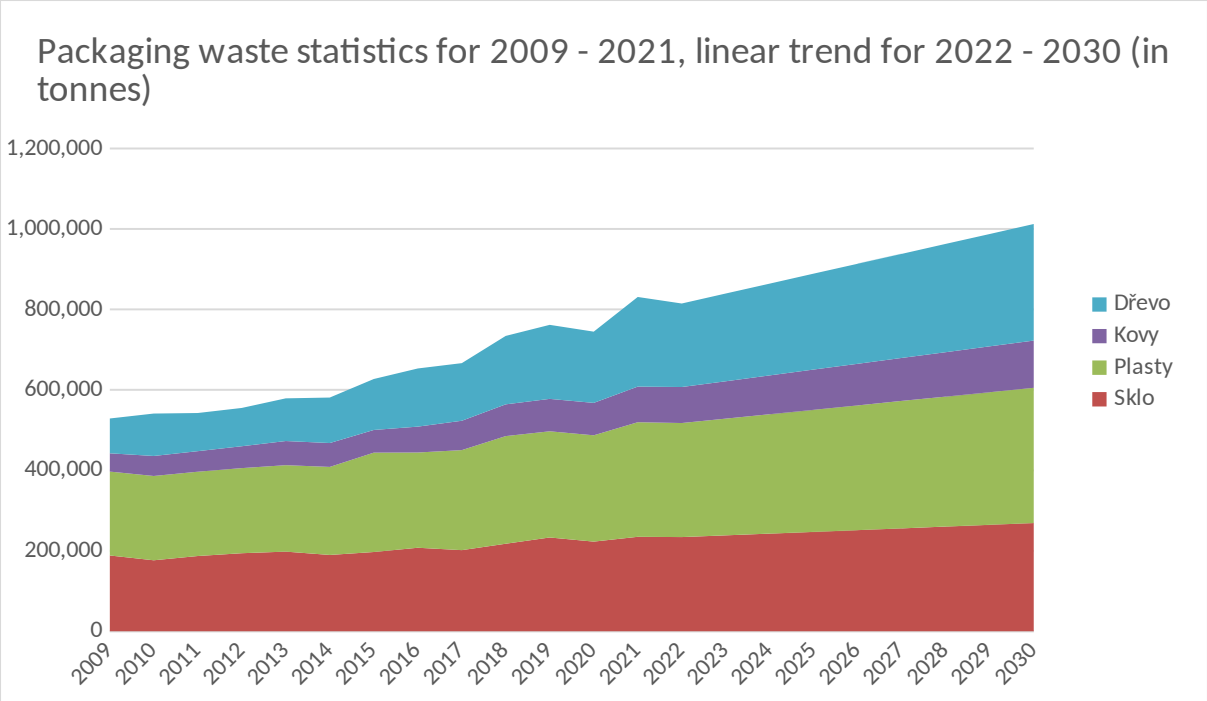
Table 2: Greenhouse gas emission reductions by sector in 2019 and 2030

	Emissions [Mt CO_2eq]		
Sector	**2019**	**2030**	**% change**
Energy	**46.3**	**12.3**	**-73 %**
Electricity and heat generation	43.0	11.3	-74 %
Fugitive emissions from fuels	3.3	1.0	-70 %
Industry	**31.5**	**19.3**	**-39 %**
Oil refining	0.5	0.6	5 %
Manufacture of solid fuels and other fuel processing	5.6	1.3	-77 %
Manufacturing and construction	9.8	7.7	-21 %
Industrial processes	15.6	9.7	-37 %
Buildings	**11.4**	**4.9**	**-57 %**
Commercial and public sector	3.0	2.8	-8 %

Residential sector	8.4	2.1	-75 %
Transport	**19.0**	**16.8**	**-12 %**
Agriculture	**9.7**	**8.0**	**-17 %**
Agriculture, forestry, fisheries – combustion	1.2	0.9	−25 %
Agriculture	8.4	7.1	-16 %
Landscape (LULUCF)	**6.5**	**-3.8**	**-158 %**
Waste management	**5.7**	**3.5**	**-39 %**

1.1.2 Prevention of littering of beverage containers, overall waste reduction

Graph 1: Packaging waste statistics for 2009 to 2021, including predictions for 2030



Statistika obalových odpadů 2009-2021,lineární trend vývoje 2022-2030 (v tunách)	Packaging waste statistics for 2009-2021, linear trend for 2022-2030 (in tonnes)
Dřevo	Wood
Kovy	Metal
Plasty	Plastic
Sklo	Glass

Source: MoE, based on the 2022 MoE Statistical Yearbook

The current development of all major packaging materials shows an increasing trend, with a linear extension leading to a 14% increase in glass waste, an 18% increase in plastic waste, a 32% increase in metal packaging, and a 30% increase in wood packaging in 2030.

A related problem with the increase in the volume of waste is littering, waste thrown about or waste left in a place that is not designated for its disposal. It may be more broadly stated that the waste is intentionally or unintentionally littered, left behind, or, as a result of natural processes, deposited in an urbanised or natural environment, away from designated waste collection points, where the producer does not actively seek to collect it, and which has a negative impact on the environment.[16] In particular, municipalities struggle with littering at the local level and spend considerable funds on it (mainly for collection, but also for awareness-raising and other measures). In the natural environment, a plastic beverage bottle decomposes in about 100 years, while a metal beverage container in about 50 years. Reducing littering means positive impacts on the environment, the economy of municipalities, and the quality of life of their inhabitants.

1.1.3 Ensuring the purity of recycled material from waste beverage packaging

In order to ensure high-quality recycling and prevent down-cycling, the European Union is strongly advocating in its legislation for the purity condition of recycled material to ensure food safety, such that normally sorted plastic waste that may be contaminated should not be counted as sorted, and recyclate from such plastic waste could only be used for the production of food contact packaging if a number of conditions are met.

Development of EU legislation

Commission Implementing Decision (EU) 2021/1752 of 1 October 2021 laying down implementing rules for Directive (EU) 2019/904 of the European Parliament and of the Council as regards the calculation, verification and reporting of data on the separate collection of waste from single-use plastic beverage bottles, which establishes a methodology for determining the weight of waste from single-use bottles collected separately, see Article 2(4):

'The waste single-use bottles shall be considered as separately collected where either of the following conditions is fulfilled:

- *a) the waste single-use bottles have been collected separately for recycling from any other waste;*
- *b) the waste single-use bottles have been collected together with other waste packaging fractions of municipal waste or with other non-packaging plastic, metal, paper or glass fractions of municipal waste collected separately for recycling, and*
  - *i) the collection system does not collect waste likely to contain hazardous substances;*
  - *ii) the collection of waste and the subsequent sorting are designed and carried out to minimise contamination of collected waste single-use bottles from waste plastics not originating from such bottles and other waste;*

[16] Littering research in the Czech Republic by EKO-KOM, a.s., for the year 2022

iii) *quality assurance systems are set up by the waste operators in order to verify that the conditions set out in points (i) and (ii) are fulfilled.'*

Commission Regulation (EU) 2022/1616 of 15 September 2022 on recycled plastic materials and articles intended to come into contact with food and repealing Regulation (EC) No 282/2008, where Article 6 states:

'1. Waste management operators that participate in the supply chain of plastic input shall ensure that the collected plastic waste meets the following requirements:

a) the plastic waste originates only from municipal waste, or from food retail or other food businesses if it was only intended and used for contact with food, including waste discarded from a recycling scheme in accordance with Article 9(6);

b) the plastic waste originates only from plastic materials and articles manufactured in accordance with Regulation (EU) No 10/2011 or recycled plastic materials and articles manufactured in accordance with this Regulation;

c) the plastic waste is subject to separate collection;

d) the presence of plastic materials and articles that are different from the plastic for which the decontamination process is intended, including caps, labels and adhesives, other materials and substances, and remaining food is reduced to a level specified in the requirements for the plastic input provided by the recycler and which shall not compromise the achieved level of decontamination.

2. For the purposes of paragraph 1, point (c), the plastic waste shall be considered as collected separately when one of the following conditions is fulfilled:

a) it consists only of plastic materials and articles meeting the requirements of paragraph 1, points (a) and (b), and which have been collected separately for recycling from any other waste;

b) it is collected together with other packaging waste fractions of municipal waste or with other non-packaging plastic, metal, paper or glass fractions of municipal waste collected separately from residual waste for recycling, and the following requirements are met:

(i) the collection system collects only non-hazardous waste;

(ii) the collection of waste and the subsequent sorting are designed and carried out to minimise contamination of collected plastic waste from any plastic waste not meeting the requirements of paragraph 1, points (a) and (b), or other waste;'

Beverage packaging – shape, material, colour

The current diversity of beverage packaging is a powerful marketing tool, but it also increases the costs of handling and disposing of such waste (sorting, recycling).

- Cylindrical shape (PET bottle, metal beverage containers) better facilitates the consumption of the drink, but conversely, takes up space. In the case of a plastic bottle containing 1.5 litres of beverage, the volume is approximately 2.48 litres (8.5 x 8.5 x 34.3 cm). For a metal beverage container measuring approximately 6.6 x 6.6 x 16.8 cm (with a beverage volume of 0.5 l), the total volume is 1.5 l. The difference is air, which is transported and stored.
- different materials (up to 1% of metal beverage containers are ferrous) – this should be taken into account in the sorting of this waste;
- colour – colour is one of the marketing tools used (blue Magnesia, green Ondrášovka, etc.) that increases the cost of the entire cycle, both due to sorting and because the recycling process itself is affected by the colour of the input material;
- full-coated bottles – (3–5%)
- the label is either PVC or PS (in very few cases also copolymer);
- these polymers are very close to PET in terms of specific weight, therefore there is a problem with their separation in process water (preflotation);
- in a material flow of 600–1000 kg per hour, it is not possible to manually remove the label (this temporarily stops the entire line), which encounters the limits of the current manual sorting lines, which are the vast majority in the Czech Republic;
- In the case of crushing, many small particles, together with PET, go to the output (a very small percentage causes a fundamental lack of quality in production). PVC and PS must not be present in the output of PET flakes (requirement of clients, e.g., limit below 20 ppm).
- further stages of separation (suction by automatic separators) – only reduce this contamination. For automatic separators, the efficiency is very low due to the weight of the small label particles (lowest efficiency – 1–3 mm particles). There are systems for removing labels at input, but then 95% of PP and PE labels, which are suitable for further recovery and recycling, are then lost.

The purity requirements for the material are strongly linked to the SUPD with a link to the possibility of reporting sorted plastic waste, as well as obligations for the mandatory share of recycled content in PET bottles placed on the market (see the specific problem of promoting the circular economy in Chapter 1.1.1).

As of 2022, under EU Regulation 2022/1616 it is no longer possible to use recycled food contact materials (FCM) under national legislation. Permits for individual recycling processes sourcing plastics will require ‘only from a closed and controlled chain upstream of contamination, as the introduction of contaminants into the chain is sufficiently controlled, ensuring that the only contamination of the plastic input can be removed by simple cleaning and thermal processes, which are anyway needed to transform the materials.’

Current recycling processes and technologies in the field of collection used in the Czech Republic will not be sufficient for materials intended for food use. The EU is strongly promoting the purity of recycled material to protect both food and the health of consumers.

At various round tables, representatives of EKO-KOM also declared that the objectives, as gradually specified by the EU, will not be met by the Czech Republic. This is due to the gradual development of the methodology for counting individual types of packaging.

1.1.4 Summary of the Czech Republic's issues with developments in EU legislation

Table 3: Comparison of the set objectives of the current situation (2022) and EU legislation

Overview of targets according to EU legislation **Directive 94/62/EC on packaging (94/62)** **Directive 2019/904 on single-use plastics (SUPD)** **draft Packaging and Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging)** **EU climate and energy policy package Fit for 55 (FF55)**			**current situation (2022)**
Collection of plastic beverage packaging (weight placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**	**73–75% (according to the SUPD target for plastic beverage packaging)** 76–79% (PET bottles only)
	by 2026 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted**	
	by 2029 (SUPD, PPWR)	**90%**	
Collection of metal beverage containers (weight placed on the market or put into circulation in a given calendar year)	by 2026 (PPWR)	**introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**	**20–30%**
	by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**	
Percentage of recycled plastics in PET bottles (every plastic beverage bottle with a capacity of up to 3 litres)	from 2025 (SUPD)	**25%**	**high level of down-cycling**
	from 2030 (SUPD, PPWR)	**30%**	
	from 2040 (PPWR)	**65%**	
Percentage of recycled metals in metal beverage containers	not defined		not tracked
Recycling of plastic (weight from plastic packaging waste)	by 2025 (94/62, PPWR)	**50%**	**46%**
	by 2030 (94/62, PPWR)	**55%**	
Recycling of aluminium (weight from aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**	**26%**
	by 2030 (94/62, PPWR)	**60%**	
Saving primary materials, reducing carbon footprint (reduction of GHG emissions compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] ,	by 2025 (FF55)	11% waste 16% industrial processes	minus 1% waste (i.e. higher emissions) 3% industrial processes
	by 2030 (FF55)	39% waste 37% industrial processes	
	by 2035 (FF55)	63% waste 70% industrial processes	
	by 2040 (FF55)	73% waste 83% industrial processes	

compliance with EU Fit for			
Minimisation of littering, overall reduction of packaging waste	reducing the growth of plastic and aluminium packaging waste minimisation of littering	without quantification, trend monitoring	growing trend (linearly by about 18% for plastics, 32% for metals by 2030) increase in littering
Maximum repeatability of recycling, minimising down-cycling	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring	high level of down-cycling

1.2 A description of the existing legal situation in the given area

The take-back of beverage packaging is enshrined in legislation in Act No. 477/2001 on packaging.

§ 10 Take-back

An entity placing single-use plastic packaging on the market or putting it into circulation must achieve a minimum level of waste take-back in each calendar year, namely:

a) 77% by weight of the packaging that it has placed on the market or put into circulation as of 1. 1. 2025,
b) 90% by weight of the packaging that it has placed on the market or put into circulation as of 1. 1. 2029.

§ 12a Mandatory content of recycled plastics in packaging

Entities placing on the market or putting into circulation single-use plastic packaging, the main component of which is polyethylene terephthalate, must ensure that each single-use plastic package contains at least:

a) 25% recycled plastics as of 1. 1. 2025,
b) 30% recycled plastics as of 1. 1. 2030.

§ 13

An entity placing packaging on the market or putting it into circulation fulfils its legal obligations:

a) independently, organisationally and technically, at its own expense;
b) by transferring obligations to another person together with the transfer of ownership of the packaging;
c) by concluding a contract on compliance with obligations with an authorised packaging company.

A detailed description of the current state is provided in the description of the variant, where the entire process is also depicted graphically.

1.3 Identification of stakeholders

Below is a basic overview of the entities concerned. A more detailed assessment of the impacts on the entities concerned is elaborated in the chapters of the impact assessment according to the options, given the complexity of the issue.

a) the public;
b) municipalities;
c) regions;
d) collection companies (businesses);
e) processors – sorting lines (businesses);
f) downstream processors linked to sorting lines – flaking, crushing, preforms;
g) authorised packaging company (APC) (businesses);
h) deposit system operator (businesses);
i) commercial companies (businesses);
j) entities adhering to a drinking regime through water in plastic beverage bottles (e.g. construction);
k) sports associations, sports clubs, cultural institutions;
l) Czech Environmental Inspectorate (CEI);
m) Czech Trade Inspection Authority (CTIA);
n) Ministry of the Environment (MoE);
o) Ministry of Industry and Trade (MIT).

1.4 Description of the objectives

The general objective is to set the legislation so that the Czech Republic takes steps according to the waste hierarchy and meets the set targets in the area of packaging material.

1.4.1 Promoting the circular economy, saving primary materials, reducing the carbon footprint

The objectives in the form of quantifiable and measurable targets is defined by meeting the targets of EU legislation. Saving primary materials and reducing the carbon footprint are then dependent on meeting the targets in terms of recycling rates and recycling methods, which are also a factor in comparing options.

1.4.2 Prevention of littering of beverage containers, overall waste reduction

Waste management shall be based on a waste hierarchy, according to which priority shall be given to waste prevention, and, where waste cannot be prevented, preparing for re-use, recycling, other recovery, including energy recovery, and, where this is not possible, disposal, in that order. Based on these priorities, the objective and the aspect of the assessment of variants is, in particular, the minimisation of littering. Measures for the overall reduction of packaging material on the market are also in accordance with the waste hierarchy. These targets are a criterion for comparing options without setting a measurable target.

1.4.3 Ensuring the purity of recycled material from waste beverage packaging

The objective and key technical aspect for the comparison of variants is to ensure the purity of the collection of plastic beverage bottles and metal beverage packaging as one of the key aspects for ensuring binding targets under EU legislation:

- increasing the recycling rate (i.e. recycling rate targets);
- the prevention of down-cycling (i.e. in particular the target of a mandatory rPET share in plastic bottles) and the associated environmental costs (e.g. carbon footprint);
- inclusion of sorted packaging (i.e. direct link to collection targets).

The purity target of the recycled material is not quantified per se, but it is an essential precondition for the likelihood of successfully achieving the quantified targets.

1.4.4 Cost-effectiveness of the collection system

In addition to meeting the above targets, an objective is also the cost-effectiveness of the packaging waste collection system, taking into account the risks of the relevant options.

1.4.5 Summary of targets

Table 4: Overview of targets according to EU legislation

Targets defined for the submission of the draft	**Overview of targets according to EU legislation**		
	Directive 94/62/EC on packaging (94/62) Directive 2019/904 on single-use plastics (SUPD), draft Packaging and Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging) EU Climate and Energy Policy Package Fit for 55 (FF55)		
Promoting the circular economy, saving primary materials, reducing the carbon footprint	**Collection of plastic beverage packaging** (weight placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**
		by 2026 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted**
		by 2029 (SUPD, PPWR)	**90%**
	Collection of metal beverage containers (weight placed on the market or put into circulation in a given calendar year)	by 2026 (PPWR)	**introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**
		by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**
	Percentage of recycled plastics in PET bottles (every plastic beverage bottle with a capacity of up to 3 litres)	from 2025 (SUPD)	**25%**
		from 2030 (SUPD, PPWR)	**30%**
		from 2040 (PPWR)	**65%**
	Percentage of recycled metals in metal beverage containers	not defined	
	Recycling of plastic (weight from plastic packaging waste)	by 2025 (94/62, PPWR)	**50%**
		by 2030 (94/62, PPWR)	**55%**
	Recycling of aluminium (weight of aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**
		by 2030 (94/62, PPWR)	**60%**
	Saving primary materials, reducing carbon footprint (reduction of GHG emissions	by 2025 (FF55)	11% waste 16% industrial processes

	compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] , compliance with EU Fit for 55)	by 2030 (FF55)	39% waste 37% industrial processes
		by 2035 (FF55)	63% waste 70% industrial processes
		by 2040 (FF55)	73% waste 83% industrial processes
Prevention of littering of beverage containers, overall waste reduction	**Minimisation of littering, overall reduction of packaging waste**	reducing the growth of plastic and aluminium packaging waste minimisation of littering	without quantification, trend monitoring
Ensuring the purity of recycled material from waste beverage packaging	**Maximum repeatability of recycling, minimising down-cycling**	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring
Cost-effectiveness of the collection system	**Maximum cost-effectiveness of the collection system, taking into account the risks to meeting the targets of EU legislation**	Quantification of investments and operating costs beyond the current situation (i.e. beyond the scope of Option 0)	investments in a packaging collection system
			necessary additional investments in sorting technologies
			operating costs of the packaging collection system
			Total over 10 years from the implementation of the measure (investment lifespan of the collection infrastructure)

1.5 Risk assessment

1.5.1 Promoting the circular economy, saving primary materials, reducing the carbon footprint; Ensuring the purity of recycled material from waste beverage packaging

The upcoming Packaging and Packaging Waste Regulation includes an obligation to introduce a mandatory deposit system for plastic beverage bottles and metal beverage containers. If the collection rate of plastic beverage bottles and metal beverage containers exceeds 80% in 2026, a derogation from the obligation to introduce a deposit system can be requested. However, within the exception, compliance with the 90% sorting target for these products in 2029 must be demonstrated. The options represent, in particular, the following risks:

Option 0 – without additional measures

- While meeting the target of 80% by 2026 can theoretically be achieved under the current system (Option 0), it is necessary to take into account the tightening requirements on material purity and changes in the methodology for the (non-)inclusion of plastic beverage bottles sorted from mixed municipal waste (MMW).
- Achieving the necessary separate collection rate for plastic beverage packaging, i.e. 90% in 2029, is a target that is highly unlikely to be achieved under the current packaging waste management system.

- In the case of metal beverage containers, it is not realistic to envisage the possibility of requesting an exemption from the introduction of a deposit system, while at the same time a deposit system will be more efficient if it is introduced for more product groups.
- However, it is more likely that in the case of Option 0, between 2026 and 2029 the Czech Republic will implement Option 1 or 2+ (i.e. introducing deposits in some form) in connection with an impending or even certain infringement.
- |Another risk of Option 0 is down-cycling, and therefore the probable necessity of importing food-grade recycled PET to comply with the mandatory rPET shares under the Single-Use Plastics Directive.
- The risk of Option 0 is the certain failure to meet the aluminium recycling target under the new regulation.
- The environmental burden (carbon footprint) associated with the absence of circularity measures in the packaging segment is also a risk.
- If the current situation is maintained, the provisions and objectives of EU legislation will not be fully met, and there is therefore a risk of infringement proceedings being initiated by the European Commission on the grounds of incorrect implementation and non-compliance with the objectives, which may ultimately lead to the imposition of financial sanctions in the event of an action by the European Commission against the Czech Republic before the European Court of Justice. The minimum amount of the lump sum fine in the case of the Czech Republic is €1,736,000. The minimum penalty for the Czech Republic is €2500 per day until the Czech Republic remedies the situation. With regard to judicial practice, it can be realistically expected that the amount of the lump sum fine and daily payment will not be near their lower limits, i.e. in the case of the Czech Republic it could be about € 10,000 per day (until the Czech Republic takes corrective action) and a € 2 million lump sum.

Option 1 – beverage packaging deposit system (separate from the sorting system)

- The overall cost of the system, which involves separating the deposit system for plastic beverage bottles and metal beverage containers from the current sorting system and the related set-up of financial flows between a number of entities (including the impact on the financial flows within the AOS system).
- The risk of some of the population not accepting the new system can be assumed to involve only a small part of society, and the financial incentive of deposits will eventually overcome the initial 'resistance'.
- Risk of not meeting the targets for sorting metal beverage containers despite the introduction of a deposit in 2026, and by extension in 2029, considering that the sorting rate of metal beverage containers is currently very low and will necessitate an adjustment in consumer behaviour patterns. However, in the case of infringement for non-achievement of the target, the question will no longer be whether to introduce a deposit system, but rather how to make the system more efficient or why the system does not achieve its objectives.
- Option 1 almost eliminates the risk of down-cycling and is therefore likely to ensure sufficient food-grade PET recycled material to meet the mandatory rPET ratios under the Single-Use Plastics Directive.

- The risk of not meeting the aluminium recycling target, however, will decrease in the event of a successful roll-out of the deposit and consumer adaptation system.
- The carbon footprint from transport could be a risk; however, as described in the problem definition, the carbon footprint from transport can be significantly outweighed by repeated recycling and measures to minimise down-cycling.

Option 2 – expansion of the sorting network

- The risk is that consumers respond only to a very limited extent to the intensification of the collection network for sorted municipal waste and show no interest in other collection methods, such as door-to-door.
- Option 2 could theoretically achieve the objectives in the area of plastic beverage bottles, but certainly not in the area of metal beverage containers, resulting in the need to introduce a deposit system between 2026 and 2029, where the introduction of a deposit only for metal beverage containers would be highly uneconomical. At the same time, the introduction of a deposit for both plastic beverage bottles and metal beverage containers would undermine the significant investments made to enhance separate collection. The risk of the variant is that, over time, it will probably be the least effective (and most costly) of the possible variants.
- The risk of Option 2 is the cost of sorting capacities and the inclusion of sorted plastic beverage bottles and metal beverage containers from the MMW. It is also possible to expect a higher rate of non-counting from the sorting of otherwise sorted packaging due to contamination of plastic beverage bottles and metal beverage containers in multi-commodity collection.
- With the above point, there is a risk of down-cycling; it is not possible to exclude the necessary import of food-grade recycled PET to comply with the mandatory rPET shares under the Single-Use Plastics Directive.
- The carbon footprint remains a risk due to lower material quality in multi-commodity collection and persisting down-cycling risks.

Option 2+ – expansion of sorting network and introduction of DDRS

- Option 2+ shares the main risks with Option 2. Option 2+ reinforces the existing separate collection system as the sole infrastructure but introduces a financial deposit tool compared to Option 2, which, to be feasible alongside the collection of additional packaging and separate waste, will need to be implemented through an individual digital application (DDRS).
- The risk of this option is that DDRS has not yet been introduced on such a broad basis; these are mostly local pilot projects. Part of the risk is also the enforceability/verifiability of the system, which is partly based on trust (e.g. whether the consumer actually places the plastic beverage bottle into the container after scanning and receiving the deposit refund).
- Risk of not meeting the targets for sorting metal beverage containers despite the introduction of a deposit in 2026, and by extension in 2029, considering that the sorting rate of metal beverage containers is currently very low and will necessitate an adjustment in consumer behaviour patterns. However, in the case of infringement (compared to Option 2) for non-achievement of the target, the question will no longer

be whether to introduce a deposit system, but rather how to make the system more efficient or why the system does not achieve its objectives.

1.5.2 Prevention of littering of beverage containers, overall waste reduction

The increasing trend in the production of all waste groups, including packaging, remains a risk for all options, and the measures under consideration are unlikely to significantly reduce the consumption of packaging (or plastic beverage bottles and metal beverage containers).

From the point of view of littering, however, it is necessary to assess that systems with a financial deposit (i.e. Option 1 and Option 2+) will achieve a reduction in pollution from returnable packaging thrown away in public areas. The risk of littering remains high, particularly for Option 0; in the case of Option 1, it is possible to reduce littering due to a denser network of collection containers.

1.5.3 Risk comparison by options

Table 5: Comparison of targets and assessment of implementation risks

Targets defined for the submission of the draft	Overview of targets according to EU legislation		current situation (2022)	Evaluation of the risks of meeting the targets according to EU legislation and the targets defined for the submission of the draft			
	Directive 94/62/EC on packaging (94/62), Directive 2019/904 on single-use plastics (SUPD), draft Packaging and Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging) EU Climate and Energy Policy Package Fit for 55 (FF55)			Option 0 without additional measures	Option 1 beverage packaging deposit system (separate from the sorting system)	Option 2 expansion of the sorting network	sub-Option 2+ extension of the sorting network + introduction of DDRS
	Key measures according to options			without additional measures	1) establishment of a deposit system separating the collection of plastic beverage bottles and metal beverage containers from other collection 2) deposits are refunded to the consumer when returning to dedicated machines	1) expansion of the existing collection network (containers) 2) expansion of the existing D2D system (separated waste bins directly at the house)	1) expansion of the existing collection network (containers) 2) expansion of the D2D system (separated waste bins directly at the house) 3) introduction of refundable deposits through digital wallets (DDRS), return through the existing collection system
	Risks of implementing measures			-	cost of a deposit system separate	cost of extending the existing network and	the cost of extending the existing network and

							from sorted collection	D2D	D2D DDRS exists in pilot projects; it is not a tested system and is inaccessible to part of the population.
Promoting the circular economy, saving primary materials, reducing the carbon footprint		**Collection of plastic beverage packaging** (weights placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**	**73–75% (according to the SUPD target for plastic beverage packaging)** 76–79% (PET bottles only)	continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and MMW)	likely achievement of the SUPD target	potential achievement of the SUPD target	likely achievement of the SUPD target
			by 2026 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted**		**likely failure to meet PPWR target -> need to introduce deposit system by 2029**	likely to meet the PPWR target	possible achievement of the PPWR target -> request for an exemption from the introduction of a deposit system	likely to meet the PPWR target
			by 2029 (SUPD, PPWR)	**90%**		continued risk of failing to meet the SUPD target, PPWR (late implementation of a deposit return system may not lead to the target being met)	likely to meet the SUPD target, PPWR	continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and from MMW)	continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and MMW)

		Collection of metal beverage containers (weight placed on the market or put into circulation in a given calendar year)	by 2026 (PPWR)	**introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**	**20–30%**	**certain failure to meet the PPWR target -> need to implement a deposit system**	likely failure to meet the PPWR target (due to the need to substantially increase the collection rate from 20–30% to 80% in 1 year after the introduction of the deposit)	**certain failure to meet the PPWR target -> need to implement a deposit system**	likely failure to meet the PPWR target (due to the need to substantially increase the collection rate from 20–30% to 80% in 1 year after the introduction of DDRS)
			by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**		continued risk of failing to meet the target -> late implementation of a deposit system may not lead to achieving the target	potential achievement of the PPWR target	continued risk of failing to meet the target -> late implementation of a deposit system may not lead to achieving the target	possible achievement of the PPWR target (enhancing the collection rate thanks to DDRS)
		Percentage of recycled plastics in PET bottles (every plastic beverage bottle with a capacity of up to 3 litres)	from 2025 (SUPD)	**25%**	**high level of down-cycling**	high level of down-cycling, i.e. the lack of rPET in the Czech Republic to meet the target (the need to import rPET), with regard to the increasing mandatory targets, the significance of the impact over time is also	very low level of down-cycling, i.e. sufficient rPET in the Czech Republic to meet the target (without the need to import rPET), assuming the mandatory target is met on time	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning the increase of the target and the tightening of conditions for	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning the increase of the target and the tightening of conditions for
			from 2030 (SUPD, PPWR)	**30%**					
			from 2040 (PPWR)	**65%**					

						increasing		the separate collection of	the separate collection of
	Percentage of recycled metals in metal beverage containers		not defined		not tracked				
	Recycling of plastic (weight from plastic packaging waste)	by 2025 (94/62, PPWR)	**50%**	**46%**	likely to meet the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**55%**		likely failure to meet the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)
	Recycling of aluminium (weight from aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**	**26%**	certain failure to meet the target (94/62, PPWR)	continued risk of failure to meet the target (94/62, PPWR)	likely failure to meet the target (94/62, PPWR)	continued risk of failure to meet the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**60%**		certain failure to meet the target (94/62, PPWR)	potential achievement of the target (94/62, PPWR)	continued risk of failure to meet the target (94/62, PPWR)	potential achievement of the target (94/62, PPWR)
	Saving primary materials, reducing carbon footprint (reduction of GHG emissions compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] , compliance with EU Fit for 55)	by 2025 (FF55)	11% waste 16% industrial processes	minus 1% waste (i.e. higher emissions) 3% industrial processes	the packaging sector will not contribute to the achievement of the objectives (down-cycling, medium recycling rate)	the packaging sector will contribute to achieving the objectives (avoiding down-cycling, high recycling rates)	the packaging sector will contribute to the objectives (high recycling rates but with down-cycling assumption)	the packaging sector will contribute to the objectives (high recycling rates but with down-cycling assumption)
		by 2030 (FF55)	39% waste 37% industrial processes					
		by 2035 (FF55)	63% waste 70% industrial processes					
		by 2040 (FF55)	73% waste 83% industrial processes					

Prevention of littering of beverage containers, overall waste reduction		**Minimisation of littering, overall reduction of packaging waste**	reducing the growth trend of plastic and aluminium packaging waste, minimising littering	without quantification, trend monitoring	increasing trend (linearly by about 18% for plastics, 32% for metals by 2030) increase in littering	no impact on the growth trend of plastic and aluminium packaging waste, increase in littering	slight decrease in the growth trend of plastic and aluminium packaging waste some reduction in littering (minimisation for returnable packaging)	the trend of growth in plastic and aluminium packaging waste is unlikely to decrease potential reduction of littering	slight decrease in the growth trend of plastic and aluminium packaging waste some reduction in littering (minimisation for returnable packaging)
Ensuring the purity of recycled material from waste beverage packaging		**Maximum repeatability of recycling, minimising down-cycling**	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring	high level of down-cycling	high level of down-cycling (without financial incentive for sorting, contamination in mixed containers)	very low level of down-cycling (deposit as a financial incentive for sorting, separation of plastic beverage bottles and metal beverage containers from other plastic waste)	continued risk of down-cycling (without financial incentives for sorting, improved availability of the collection network and D2D, contamination in mixed containers)	continuing risk of down-cycling (deposit as a financial incentive for sorting, improving the availability of the collection network and D2D, contamination in mixed containers)

	degree of probability	
	certain achievement/non-achievement	90–100%
	probable achievement/non-achievement	75–90%
	potential achievement/non-achievement	60–75%

	continuing risk of non-achievement	40–60%
	cannot estimate achievement/non-achievement	0–40%

1.6 Proposed solution options

1.6.1 Context of the discussion in the Czech Republic on additional measures to ensure the circularity of plastic beverage bottles and metal beverage containers

Plastic beverage bottles appeared on our market more than thirty years ago, and for twenty years, the infrastructure for their collection from the public has been gradually built in the Czech Republic. The last heated debate on how to ensure maximum recycling of plastic beverage bottles took place around 15 years ago. At that time, beverage manufacturers refused to implement a deposit system. They clearly called on the municipal sector to take care of the collection of all plastics. Municipalities, cities, technical services, and private companies managing municipal waste began investing in infrastructure to establish the necessary collection network for plastic waste, particularly through separate collection containers, to acquire collection equipment, and to construct sorting lines for sorting and pressing before dispatch for recycling.

The debate on the introduction of a mandatory deposit system has reopened in the context of the introduction of an obligation for the beverage industry to place products with at least 25% recycled content on the market. At the same time, the Ministry of the Environment informed the authorised packaging company EKO-KOM that simply by intensifying the existing system, the Czech Republic will not achieve the mandatory target of 90% collection in 2029. This was also reflected in the Government's Programme Statement in 2022 (and further revised in 2023), which committed to consider the introduction of a deposit system for plastic beverage bottles and metal beverage containers.

These initiatives were also supported by the beverage industry, which, through the Deposit Initiative, expressed support for the establishment of a stand-alone EPR (Extended Producer Responsibility) system, a willingness to assume extended producer responsibility, and to build a deposit system.

However, this system must reflect the conditions of the Czech Republic, which differ from those under which foreign deposit systems were established. 15 countries in the EU have already implemented a deposit-refund system, and others are planning to implement it (from 2025, Austria, Poland, and Cyprus). Non-EU countries have also introduced a deposit system (e.g. Norway, Iceland, or Scotland) and others are introducing it. A large proportion of European countries with an established deposit-refund system already meet the 90% collection rate for PET beverage packaging, including Denmark, Finland, Germany, Norway and Lithuania. Neighbouring Slovakia reached a collection rate of 90% in the second year following the introduction of a deposit system and achieved a collection rate of 92% in 2023.

The European Union is moving towards more consistent recycling of packaging material and the introduction of a circular economy in production and consumption cycles. The aim is not only to separate well, but to ensure that the material that the manufacturer places on the market is recovered, with the objective of maintaining its quality parameters for as long as possible. Reasons can be found not only in reducing CO_2 emissions, reducing the use of scarce natural resources, and preventing waste, but also in ensuring material self-sufficiency and increasing Member States' resilience to supply chain disruptions.

The technical possibilities of ensuring the purity of the material in the Czech environment are for practical purposes twofold:

1. Split current collection of plastics into two streams

- any plastic,
- food packaging material.

In this case, it would be necessary to ensure maximum cleanliness of the discarded packaging, which is very difficult for plastic containers placed in public spaces. It would be necessary to place an additional container at each collection point for food packaging material, which would have to be transported by another vehicle, thus leading to double transport and potentially doubling the cost, but the certainty of the material's purity would not be guaranteed. However, such an Option seems pointless compared to the introduction of a deposit system, as it would essentially involve a duplication of the flow of infrastructure and transport (as in the case of the introduction of a deposit under Option 1), while also lacking financial incentives. A more detailed analysis of the costs of expanding collection is included in the impact assessment of Option 2, which envisages additional containers, etc. – however, the split streams would only concern part of the sorting system (only as part of its extension, not its overall redevelopment).

2. deposit system separate from the existing sorting system

Separate systems will prevent contamination of packaging with other types of products within the MMW or other waste commonly found within separated waste. The EU deliberately foresees in the new draft regulation of December 2022 that dairy products would not be subject to a deposit.

Public attitudes – results of a questionnaire survey (Ministry of the Environment, Focus Agency)

Parameters of research:

- **Quantitative research** representative of the adult population of the Czech Republic.
- **Respondent selection method:** quota sampling based on SLBD 2021 data.
- Sample size: 1129 respondents.
- **Data collection period:** 7. 12. – 30. 12. 2022
- **Data collection method:** mixed mode: CAPI (Computer Assisted Personal Interviewing) – face-to-face interviews conducted by trained interviewers with respondents, recorded in electronic questionnaires, CAWI (Computer Assisted Web Interviewing) – respondents independently complete the electronic questionnaire on their computer or tablet.
- **Data collection tool:** questionnaire (7 survey questions, socio-demography, and 2 bonus questions on environmental behaviour).

Key messages:

- a majority of respondents reported that a large part of the working day is spent either at home or at work, where there is easy access to drinking water;
- they buy bottled water especially when they do not have access to drinking water, do not like the water from a given source, or need a new bottle. Among the less frequent cases, they mentioned the need for mineral water, infant water for a child, or a forgotten bottle of water;
- In the area of the use of plastic bottles, the questionnaire found that most people throw them away after use, while others reuse them and discard them only when

there are signs of significant wear and tear. There are also those who use plastic bottles for other purposes, for example, as containers for DIY projects, etc.;
- waste containers for plastic beverage bottles and metal containers for beverages would be most welcome in public places, at public transport stops, in front of shops, in accommodation facilities, on trains; some would also like to see them in parking lots, children's playgrounds, or parks;
- the purchase of bottled water is also influenced by the weather.
- half of the population over 18 years old is in favour of introducing a deposit system, a third is against it, and about a fifth declares that they will ignore this system and continue to dispose of beverage packaging in sorted waste containers;
- a majority of respondents stated that it is closer to the collection point than to the store, and that they will return the packaging in bulk (storing it at home and returning it all at once). Some stated that they would start using their vehicle more, reduce the purchase of drinks in plastic beverage bottles, and that they would mind having to wait when returning bottles;
- most prefer returns at the points of sale of beverages (in shops and in each municipality regardless of the existence of a shop);
- the maximum walking distance that would not dissuade them from returning plastic beverage bottles is 300 m for half of the respondents and 200 m for a third;
- some respondents also expressed a preference for water in a glass bottle (except in situations such as a hiking with a bottle in a backpack, etc.), while some said no, and some did not have a clear opinion on this;
- a majority of respondents stated that if the costs of the whole system were reflected in the price of the product, they would limit the purchase of beverages in plastic beverage bottles; another part stated that the price increase would not affect their purchasing decisions;
- the survey also showed that more information is needed on how to process returnable plastic beverage bottles (a quarter do not know how it should work, a fifth think bottles should be washed and refilled).

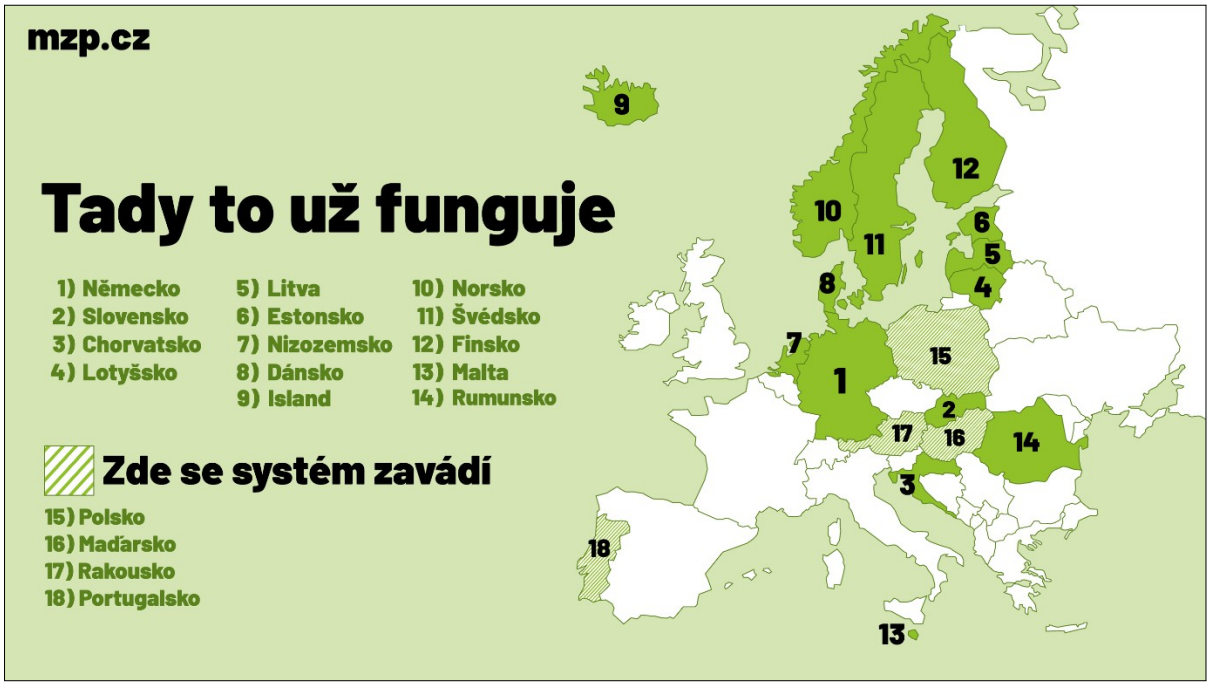
1.6.2 International comparison

When comparing waste management systems, it should be borne in mind that countries cannot be fully objectively compared, because separation systems in all countries are quite different and also have different results. The separation system in the Czech Republic has long been among the top three in the EU, but this does not apply to recycling and material recovery of the collected material. At all times, it fulfilled all the legislative targets, and even exceeded them. It is currently even meeting the collection targets for plastic beverage bottles for the year 2025. In the Czech Republic, the current voluntary system already collects eight out of ten plastic beverage bottles. The Czech Republic is very well on track to meet the defined 2025 targets for plastic beverage bottles, which has now been confirmed by the European Commission report of June 2023, where it is among the only nine countries likely to meet the 2025 targets. Nevertheless, as described above in the definition of the problem, the system in the Czech Republic shows a number of shortcomings in terms of ensuring full circularity and at the same time encounters limits in reaching a 90% sorting rate. At the same time, there are large shortcomings in the area of metal beverage containers.

Some Member States oppose the introduction of mandatory deposits, but discussions on a new regulation on packaging and packaging waste, as well as increasing consumer

pressure, are gradually changing the approach in most Member States. Belgium, for example, is exploring ways to introduce a different deposit model. Elsewhere they are already focusing on a future deposit system for multi-use reusable beverage packaging (refillable). Germany wants to pursue this path in the future, and it can also be found in the proposal for a European regulation on packaging and packaging waste. (source: CAOH)

The vast majority of European countries, including Poland, Hungary, and Austria, have chosen a deposit system as a means of meeting their targets. 15 countries in the EU have already implemented a deposit-refund system, and others are planning to implement it (from 2025, Austria, Poland, and Cyprus). Non-EU countries have also introduced a deposit system (e.g. Norway, Iceland, or Scotland) and others are introducing it.



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Tady to už funguje	Here it is already in place
1)Německo	1) Germany
2)Slovensko	2) Slovakia
3)Chorvatsko	3) Croatia
4)Lotyšsko	4) Latvia
5)Litva	5) Lithuania
6)Estonsko	6) Estonia
7)Nizozemsko	7) The Netherlands
8)Dánsko	8) Denmark
9)Island	9) Iceland
10)Norsko	10) Norway
11)Svedsko	11) Sweden

Figure 2: Deposit system map (source: MoE)

12)Finsko 13)Malta 14)Rumunsko	12) Finland 13) Malta 14) Romania
Zde se system závadi	Here a system is being implemented
15)Polsko 16)Madársko 17)Rakousko 18)Portugalsko	15) Poland 16) Hungary 17) Austria 18) Portugal

1.6.2.1 Czech Republic

The average walking distance to containers is only 90 meters, and more and more citizens already even have colour-coded collection containers at their family homes. The Czech Republic is already meeting its 2025 targets for plastic collection. However, analyses for the intensification of the existing network, such as those by EKO-KOM, point to high costs to achieve further improvements in collection, as there is a lack of motivation for the 20% of citizens who do not currently use the system. In the case of a system for collecting metal beverage containers, significant investments would then have to be made to increase collection, for example, for the introduction of a door-to-door system for all family homes in the Czech Republic. And to meet the 90% collection targets, it is necessary to increase the performance of the current system by about 6890 tonnes of PET (current collection about 77%, total production about 53,000 tonnes of PET, 13% needed to meet the target). The Czech Republic, unlike other countries that have introduced a deposit system for beverage packaging, also has the advantage that consumers are accustomed to returning refundable glass bottles, most often for beer in shops. With this deposit system, which is traditional in the Czech Republic, the return rate exceeds 95%. From the consumer's point of view, the introduction of a new system would merely extend the existing system to new types of beverage packaging.

Beverage packaging should be placed in containers for plastics or metals, then collected, sorted, and reused according to the possibilities of the material. However, the practice of the current system shows that only a minimal amount of packaging is recycled back into new packaging, and repeated recycling occurs minimally.

Placed on the market:	approx. 1.8 billion plastic beverage bottles, approx. 0.8 billion metal beverage containers
Population:	10.7 million
Area:	78,900 km^2
Source of drinking water:	underground, surface,
Receptacles for plastic:	average distance approximately 90 m,
Deposit system from:	discussion, preparation,

Shortcomings of the current system:

- accommodation services (in most accommodation facilities, there are no containers for sorted waste in the rooms or corridors);

- travel (insufficient sorted waste receptacles at stops of means of transport, rest areas, etc.) or separation of their contents;
- cultural and sports facilities (lack of available sorted waste receptacles);
- shopping (only mixed waste bins in front of shops and shopping centres, with most shops lacking sorted waste bins inside as well);
- hospitality (very often all the waste at the bar ends up in one black bag).

From the pictures below, it is clear what the current state of sorting offered to customers is (Albert Obzor, Penny Kunratice, DM Drogerie Kunratice, Billa at the Volha dormitory)

Figure 3: Example of sorting or non-sorting in some shops in Prague

1.6.2.2 Slovak Republic (Slovakia)

Population: 5.5 million
Area: 49,000 km^2
Source of drinking water: underground, surface, quality comparable to that of the Czech Republic
Receptacles for plastic: insufficient network
Deposit system from: 1. 1. 2022

Prices: €0.15 PET and metal beverage containers with a capacity of 0.1–3 L
Obligation for: shops over 300 m^2
Placed on the market: 750 million PET bottles
500 million metal beverage containers

Information from the Deposit System Administrator

- 15 months from the adoption of the act to the collection of the first bottle;
- a transition period of 1 month for the manufacturer, 6 months for the distributor;
- return problems caused by the relatively short time between the authorisation of a new Administrator and the launch of the system have gradually receded, the collection network has been expanded and consumers have adjusted their shopping habits and times so that they do not have to queue up when returning beverage packaging;
- the material is sold on the basis of an auction where options take precedence, followed by other interested parties. Producers who purchase the material at the market price through an option are obliged to ensure that the recycled material is used again for the production of beverage packaging;
- the handling fee is set on the basis of an independent third-party verification of the actual costs incurred by the distributor and is paid to businesses on a monthly basis;
- is calculated to cover the direct additional costs of the collection points associated with the system (rental, energy, initial investment in technology, personnel costs, etc.);
- €200 one-time registration fee for the manufacturer;
- €50 administrative fee for each EAN code (inclusion, exclusion, modification) for the manufacturer;
- €700–800 for a reader, and software for potential manual collection is provided free of charge by the Administrator to the participating collection points;
- €0.023–0.039 handling fee (manual collection €0.03);
- collection is carried out by external entities for the administrator, and the vehicle is selected based on the place of collection, the capacity of the shops, and the quantity collected (trucks or vans);
- payment of the handling fee is on a monthly basis with the possibility of an advance payment in case of a request by the distributor.

Results of the collection system:

Information from the Report on the Activities of the Deposit System Administrator for the second half of 2023:

- approximately 1.16 billion returnable containers (1.9 billion since the launch of the system);
- 3269 collection points (72% automated);
- on average, 80 vehicles are in operation per day, with an annual distance driven of almost 2.5 million km;
- consumers tend to choose a collection point based on whether they also plan to do some shopping at the location where returnable containers can be returned;
- the average number of returned containers per store visit is around 16;

- financial motivation is more pronounced in the younger population under 35 years of age;
- In connection with fraud in this area, the Administration cooperates with the Ministry of the Environment of the Slovak Republic, the Slovak Environmental Inspectorate, the Slovak Trade Inspection, the Antimonopoly Office, the Police of the Slovak Republic, and the Finance Administration of the Slovak Republic.
- The administrator has created the position of fraud prevention manager, monitors collection areas, checks collected containers, conducts systematic reporting, performs preliminary financial checks, organizes fictitious purchases, analyses camera records, and cooperates with suppliers of automatic machines, distributors, and state control bodies;
- Slovakia saw a significant drop in discarded beverage packaging. In 2020, metal beverage containers accounted for 21% and PET bottles for 18% of the waste collected. By autumn 2022, this was only 4% of metal beverage containers and 5% of PET bottles.

Financing the Administrator's activities

- The Administrator is financed by the collection of fees, the sale of materials, and unrefunded deposits;
- initial investment of approximately €7 million (consisting of loans from the founding members of beverage manufacturers and bank credit), is paid only from the funds of the Administrator;
- deposit machines and hand-held scanners are financed by distributors; all these costs are reimbursed to them on the basis of the handling fee for the collection of packaging, reimbursed by the Administrator;
- initial investments were needed to build a sorting centre, intermediate warehouses, technological equipment, clearing centre equipment (software, hardware, office equipment), initial marketing campaigns, securing information and educational activities and PR communication before the start of the deposit system, project management;
- annual projected costs at a rate of return of 90% are estimated at €35 million, with estimated revenues of €30 million (the actual amount depends on many factors, such as the size and structure of the network, the attitude of the population, the efficiency of the system, etc.);
- any surpluses will be used by the Administrator to streamline the deposit system;
- the funds accumulated in the first years will be used for initial capital expenditures, financing and system improvement, provisioning for unexpected developments in the rate of return and, where appropriate, other changes in costs. (Source: Deposit System Administrator).

Shortcomings of the current system

- some manufacturers have started placing 3.1-litre packaging on the market;
- the payment of the handling fee is approximately one year late;

Recommendations by Slovakia

- more time to prepare;
- start marketing in time;

- analyse, analyse, analyse;
- setting the handling fee amount properly;
- the right logistics.

1.6.2.3 other countries, options for waste collection and prevention

European countries are gradually addressing issues with packaging materials, especially beverage packaging, and hence during travel, various solutions can be observed that primarily prevent the creation of packaging materials, but there are also smart methods for collecting beverage packaging. Below are examples:

- **Republic of Croatia (Croatia)**

Population: CZK 3.9 million
Area: 56,500 km^2
Source of drinking water: poor, islands mostly without potable water, bottled water required
Receptacles for plastic: are not within walking distance
Deposit system from: from 2005
Prices: 0.5 Kuna (until 2022)
Obligation for: shops over 200 m^2

Shortcomings of the current system:

- problems with machines for beverage containers (queues, jams, etc.);
- litter around beverage vending machines;

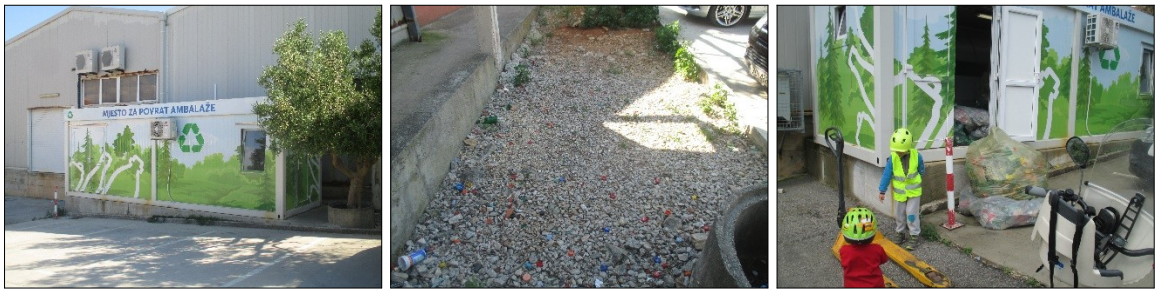


Figure 4: Container with a reverse vending machine for PET and metal beverage containers, the island of Vir, Croatia 2021

- **Republic of Austria (Austria)**

Population: 9 million
Area: 78,000 km^2
Source of drinking water: underground, springs
Receptacles for plastic: similarly to the Czech Republic, bins in public places (metro etc.)
Deposit system from: from 2025
Prices: €0.25

- **Republic of Poland (Poland)**

Population: 38 million
Area: 313,000 km^2
Source of drinking water: not determined
Receptacles for plastic: similarly to the Czech Republic, bins in public places (metro etc.)
Deposit system from: trial operation, legislation is being prepared

Prices: 0.05 zł (now as a voucher for the purchase of goods)

- **Scotland (source: Sensoneo, Bratislava)**

As most sectors of the world are currently undergoing digitalisation, digital systems are no exception. The classic model, first introduced in Sweden in 1984, may still seem reliable and fully functional to this day, but it is in the nature of people to innovate and simplify things. The new model, called the Digital Deposit Return System, also known as DDRS, is still not standardized and firmly defined. Some experts and people from the sector understand this term to mean only the use of digital wallets, while other professionals delve deeper and view DDRS as a model where consumers are not required to return packaging to stores, but instead use digital tools at home to assist them in scanning the bar code on a container, which can later be disposed of in a container or a smart trash can.

When we talk about DDRS solely from the perspective of introducing digital wallets, proponents of this solution primarily argue for fraud prevention, increased motivation among the younger generation, and the simplification of the process when it is necessary to redeem a deposit voucher at the cash register. On the other hand, people sceptical of digital wallets under a refundable deposit system claim that this may be a problem due to older consumers without smartphones. However, this system has not yet been tested anywhere. Another fundamental problem is that the beverage industry rejects this approach, as it can cause significant operational and logistical problems. For example, in order to print unique codes on metal beverage containers, production lines will need to be slowed down by at least half, packaging on pallets will need to be monitored during further logistics and transport. This can lead to significant price increases for consumers.

A trial run of the Deposit Return Scheme, which integrates digital wallets and micropayments, was launched in Glasgow, Scotland, and the West Central Scotland region. As described on scottishgrocer.co.uk, consumers returned disposable PET bottles with a capacity of up to 750 ml to the shops participating in the test. Thanks to cooperation with the credit company Mastercard and the developer of the Helpful payment app, a consumer account deposit of 20 pence per container was paid using the smartphone app. The pilot was assessed as unsuccessful and Scotland began to prepare for the launch of a traditional deposit system.

Nevertheless, as Alex Henriksen, CEO of Tetra Pak North Europe, told packagingeurope.com, the simplest and most user-friendly DDRS is the one that allows consumers to connect to the system from home. Put simply, in this DDRS approach, the consumer would scan the bar code on the bottle at home and digitally exchange deposits for packaging without leaving home, continuing to use the already existing household waste collection infrastructure. In this case, there is a risk that the consumer will not actually sort the packaging after obtaining the deposit, and it may become litter. The system presupposes digital literacy for all users, which may put some groups at a disadvantage. This is because without an app on a smartphone or hand-held scanner, a container cannot be returned.

- **Belgium (source: Fostplus)**

Belgium is currently conducting a series of tests and pilot projects for a small-scale smart deposit system. These test individual aspects of the system, but none of them tests the system as a whole. This includes unique codes on beverage packaging, application operation, ease of scanning unique codes, deposit return, and security systems to prevent fraud and protect personal data. A smart deposit system offers many advantages. Thanks to this system. The pilots aim to facilitate waste sorting and collection for citizens while reducing

the amount of waste, and are currently being tested on a sample of approximately 100,000 containers. Most consumers who are already sorting their metal beverage containers or bottles will need to purchase a smartphone app or hand-held scanner, but otherwise they will not have to change their behaviour. While this may help Belgium to maintain its high collection rate, the introduction of the system will not have a positive impact on recycling and will not lead to any 'improvement in the purity of the collected material' and recycling.

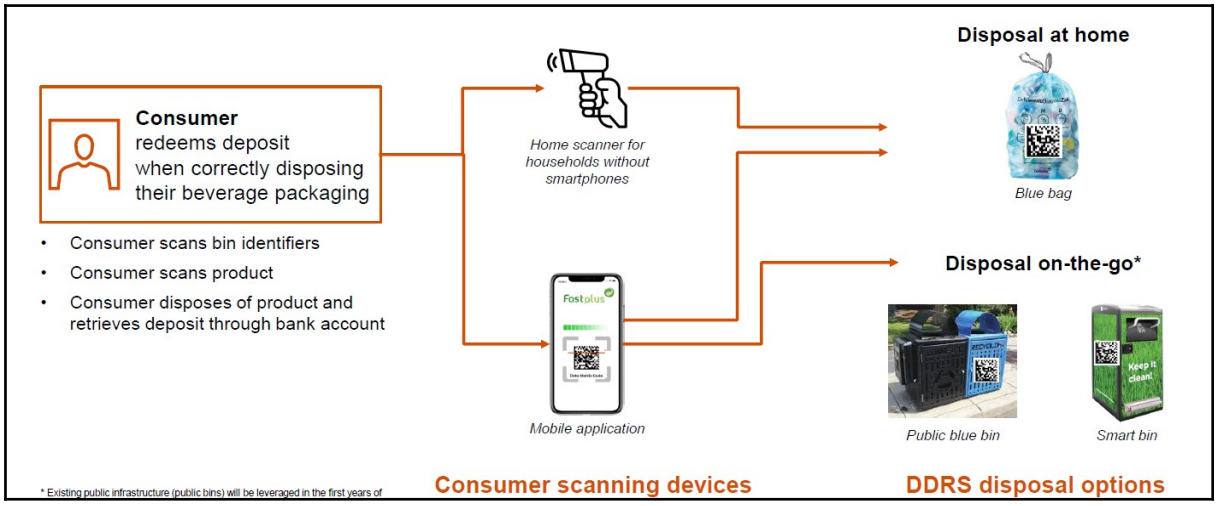


Figure 5: Pilot Belgian DDRS (Source: PWC, 2022)

Table 6: Comparison of DRS and DDRS in Belgium (PWC, 2022)

Comparison of average yearly cost on the basis of 100% collection rate (illustrative)							
	Investment cost	Operational cost	Litter cost	Total cost	Unredeemed deposit	Recycling revenue	Total income
DDRS	-11,848,649.07 €	-82,455,916.62 €	0.00 €	**-94,304,565.69 €**	0.00 €	51,109,278.33 €	**51,109,278.33 €**
DRS	-15,486,450.00 €	-110,873,413.22 €	0.00 €	**-126,359,863.22 €**	0.00 €	51,109,278.33 €	**51,109,278.33 €**
Delta (DDRS - DRS)	3,637,800.93 €	28,417,496.60 €	0.00 €	**32,055,297.53 €**	0.00 €	0.00 €	**0.00 €**

Note: The cost of DDRS does not include investments on the part of beverage packaging manufacturers (up to EUR 5 million for operation) nor operational impacts caused, for example, by the slowing down of filling lines for metal beverage containers (source: Ivan Tučník, ASAHI Beer).

In addition, Belgium has established a system of fines and possible rejection of waste:

- Fines
  - Fines may be imposed if waste is not properly sorted. In Brussels, for example, there may be fines for improperly sorting waste and for failing to sort food waste into orange bags. Fines for incorrect sorting can range from EUR 50 to 300, while fines for omitting glass sorting can be up to EUR 150 and for electrical appliances up to EUR 300 (Belgium.be) (ARP-GAN).
- Rejection of waste
  - If the waste is not properly sorted, waste companies may refuse to collect it. Responsibility for proper waste sorting lies with citizens and companies (ARP-GAN) (Commissioner Brussels).https://www.brusselstimes.com/brussels-2/694048/dont-just-bin-it-sort-it-brussels-fines-people-who-ignore-new-waste-rules

- **France**

At present, France has suspended the implementation process of the deposit system due to the expected high economic costs. However, it is not clear how it will meet the EU's objectives in the future, therefore a deposit system remains one of the options for the future.

Other

In **Germany**, before the introduction of an across-the-board deposit system, beverage packaging accounted for about one-fifth of all litter in 1998. Between 1 and 2 billion beverage containers were discarded in nature in 2002. After the introduction of deposits, beverage packaging litter dropped to almost zero.

In **Lithuania**, in a 2018 survey on how the deposit-refund system helped reduce littered beverage packaging in nature, 95% of local respondents confirmed a positive experience. The benefits of introducing deposits in relation to littering are also confirmed by the experience of **Estonia**, which switched to the system in 2005. Estonia analysed the composition of litter along roads in 2003. Beverage packaging accounted for up to 80% of the waste collected, the majority being PET bottles and metal beverage containers. After the introduction of deposit payments, the share of beverage packaging in litter along roads has fallen below 10%. (see for example https://retailnews.cz/2023/04/12/zalohovani-snizuje-pocet-odhozenych-pet-lahvi-a-plechovek/).

1.6.3 Option 0 – without additional measures

- containers for plastics and metals (average distance of 90 m);
- plastic bins in public spaces, premises (inside, outside) of entities (public buildings and companies), which are sometimes serviced by companies other than those handling container collection in a given city;
- door-to-door system (sorted waste bins placed directly at citizens'

Figure 7: How the system works (source: EKO-KOM a.s.)

Figure 6: How the system works (source: EKO-KOM a.s.)

premises, increased frequency of collection for sorted commodities, and reduced frequency of collection for mixed municipal waste).

IKLIENTI platba 100 %	CLIENTS payment 100%
balený výrobek	packed product
SPOTŘEBITELÉ 3,2 %	Consumers 3.2%
propagace třídění a využití odpadu	promotion of waste sorting and recovery
OBCE 65,7 %	MUNICIPALITIES 65.7%
zpětný odběr a zajištění sběrné sítě	take-back and providing the collection network
DOTŘIĎOVACÍ LINKY 15,6 %	SORTING LINES 15.6%
úprava obalových odpadů	treatment of packaging waste
ZPRACOVATELÉ	PROCESSORS
využití a přímá podpora recyklace obalů, sběr ZO 7,5%	recovery and direct support of packaging recycling, collection of business waste 7.5%
nové	new
výrobky	products
STÁT 0,9 %	STATE 0.9%
Odvody statu (poplatkly SFZP, dane)	State levies (SEF fees, taxes)
finanční tok	financial flow
obalový tok	packaging flow
NEZISKOVÝ SYSTÉM	NON-PROFIT SYSTEM
Administrativní řízení: 1,5 %	Administrative proceedings: 1.5%
Evidence obalů a odpadů z obalů:4,7%	Records of packaging and packaging waste: 4.7%
Audity a kontroly: 0,9	Audits and checks: 0.9

Registration and record-keeping fees

- for registration in the List CZK **800** ;
- for issuing a decision on authorisation in the amount of CZK **2000** ;
- for keeping records, a registration fee in the amount of CZK **800** per year for each person with whom the authorised company has concluded a collective compliance agreement;
- revenue from registration and record-keeping fees constitutes income of the budget of the State Environmental Fund of the Czech Republic.

The illustrations below depict the current system, where initially we have a preform of a PET bottle or feedstock for metal beverage containers.

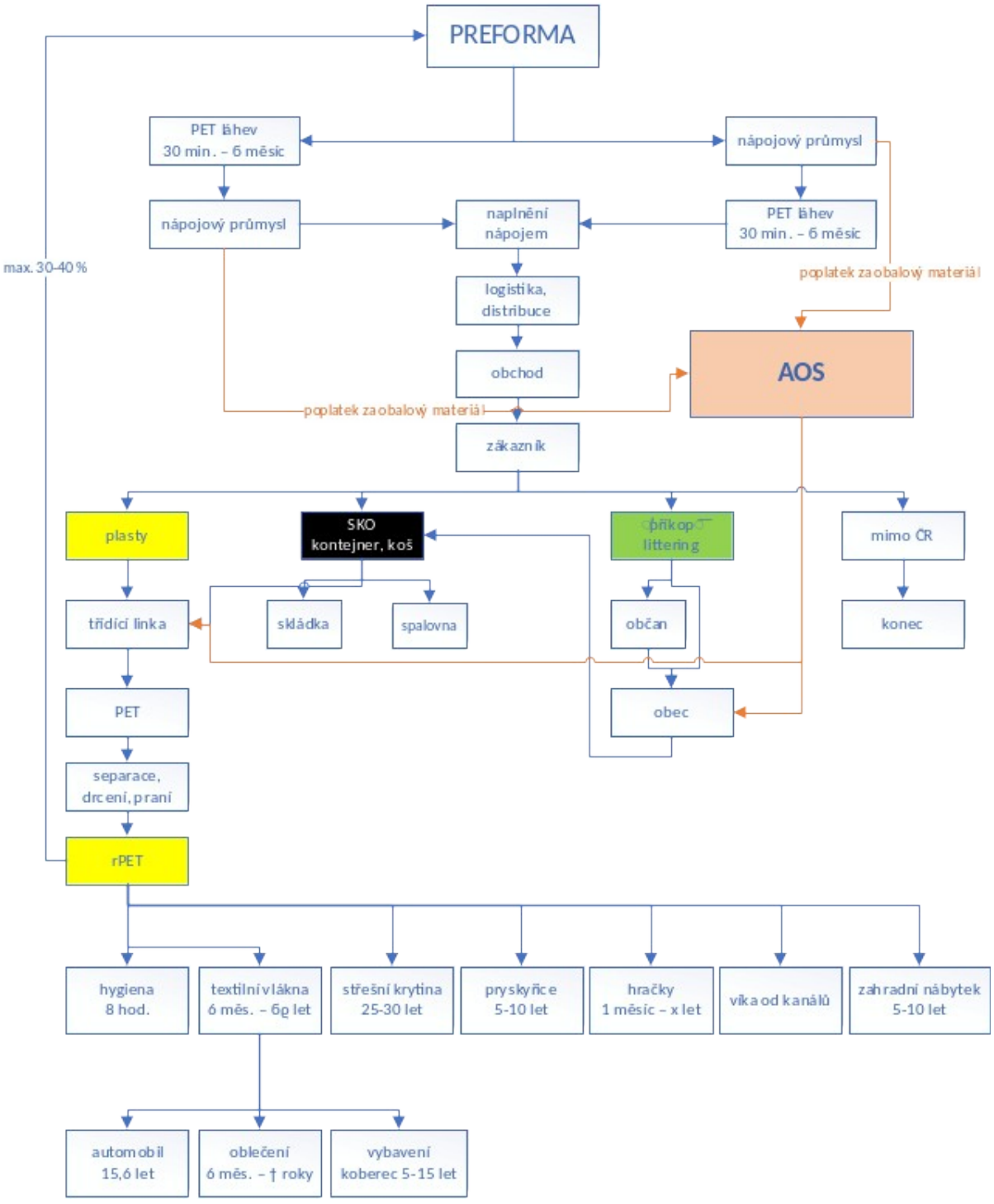


Figure 8: PET – current situation

PREFORMA	PREFORM
max. 30-40 %	max. 30-40%
PET láhev 30 min. – 1 měsíc	PET bottle 30 min – 1 month
nápojový průmysl	beverage industry
naplnění nápojem	filling with beverage
logistika, distribuce	logistics, distribution

obchod	shop
poplatek za obalový materiál	packaging material fee
zákazník	customer
nápojový průmysl	beverage industry
PET láhev 30 min. – 1 měsíc	PET bottle 30 min – 1 month
poplatek za obalový materiál	packaging material fee
AOS	**APC**
plasty	plastic
třídící linka	sorting line
PET	PET
separace, drcení, praní	separation, crushing, washing
rPET	rPET
SKO kontejner, koš	MMW container, bin
skládka	landfill
spalovna	incinerator
„příkop“ littering	‘ditch’ littering
občan	public
obec	municipality
mimo ČR	outside the Czech Republic
konec	end
hygiena 8 hod.	hygiene 8 hrs.
textilní vlákna 6 měs. – 15 let	textile fibres 6 months – 15 years
střešní krytina 25-30 let	roof covering 25-30 years
pryskyřice 5-10 let	resin 5-10 years
hračky 1 měsíc – x let	toys 1 month – x years
víka od kanálů	manhole covers
zahradní nábytek 5-10 let	garden furniture 5-10 years
automobil 15,6 let	car 15.6 years
oblečení 6 měs. – 3 roky	clothing 6 months – 3 years
vybavení koberec 5-15 let	carpet 5-15 years

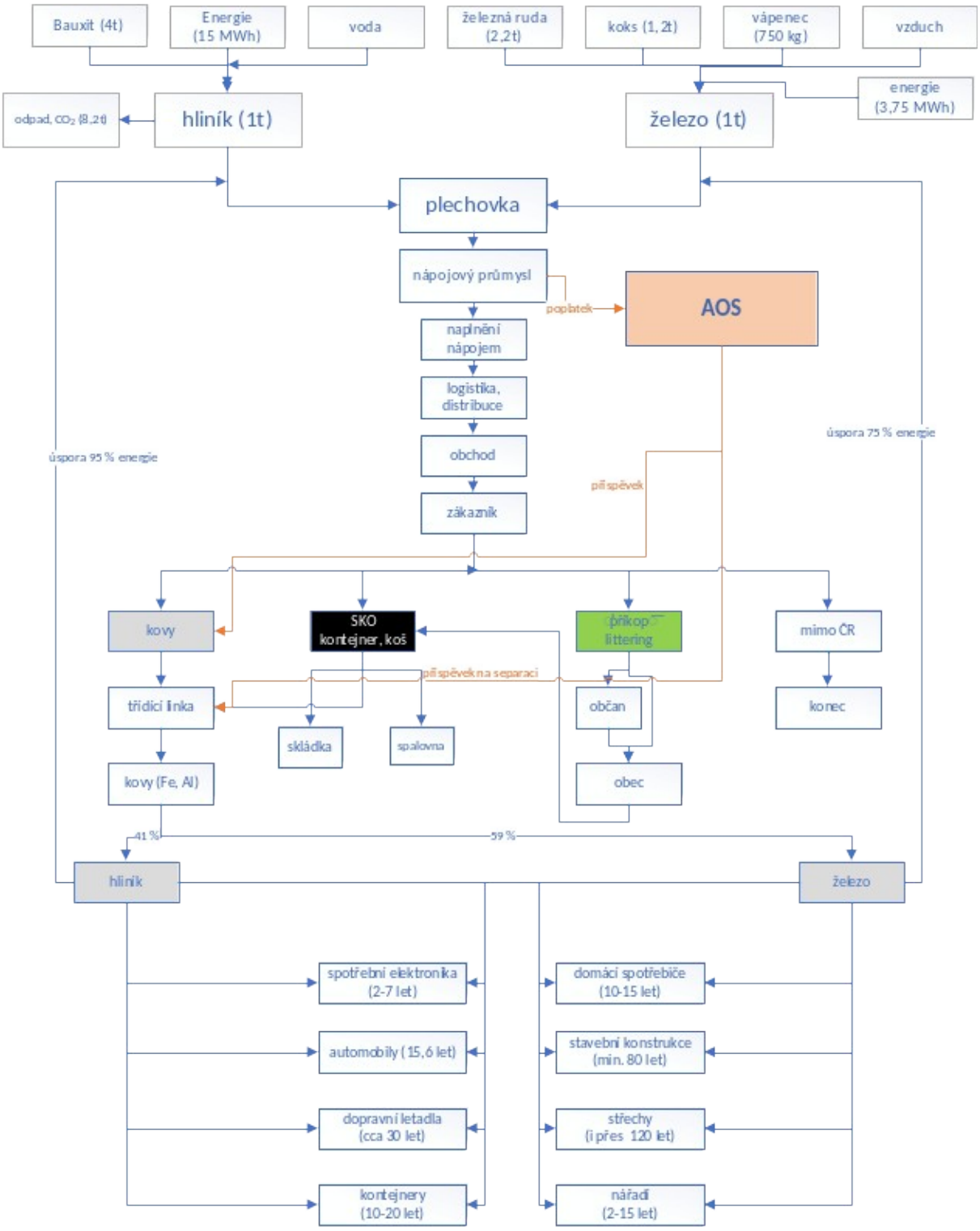


Figure 9: metals – current situation

Bauxit (4t)	Bauxite (4 t)
Energie (15 MWh)	Energy (15 MWh)
voda	water
železná ruda (2,2t)	iron ore (2.2 t)
koks (1,2t)	coke (1.2 t)
vápenec (750 kg)	limestone (750 kg)
vzduch	air

odpad, CO_2 (8,2t)	waste, CO_2 (8.2 t)
hliník (1t)	aluminium (1 t)
železo (1t)	iron (1 t)
energie (3,75 MWh)	energy (3.75 MWh)
plechovka	can
nápojový průmysl	beverage industry
naplnění nápojem	filling with beverage
logistika, distribuce	logistics, distribution
obchod	shop
zákazník	customer
úspora 95 % energie	95% energy savings
poplatek	fee
příspěvek	contribution
AOS	APC
úspora 75 % energie	75% energy savings
kovy	metal
třídící linka	sorting line
kovy (Fe, Al)	metals (Fe, Al)
hliník	aluminium
SKO kontejner, koš	MMW container, bin
příspěvek na separaci	separation allowance
skládka	landfill
spalovna	incinerator
„příkop“ littering	‘ditch’ littering
občan	public
obec	municipality
mimo ČR	outside the Czech Republic
konec	end
železo	iron
spotřební elektronika (2-7 let)	consumer electronics (2-7 years)
automobily (15,6 let)	cars (15.6 years)
dopravní letadla (cca 30 let)	passenger planes (approx. 30 years)
kontejnery (10-20 let)	shipping containers (10-20 years)
domácí spotřebiče (10-15 let)	household appliances (10-15 years)
stavební konstrukce (min. 80 let)	building structures (minimum 80 years)
střechy (i přes 120 let)	roofs (even over 120 years)
nářadí (2-15 let)	tools (2-15 years)

1.6.4 Option 1 – beverage packaging deposit system (separate from the sorting system)

The proposed option was developed over several months within the framework of negotiations at the Ministry of the Environment, involving representatives from the beverage sector, the commercial sector, as well as representatives from municipalities and the current APC. The resultant version of the draft act is based on discussions from these meetings,

which took into account, in particular, feasibility, controllability, and, last but not least, the potential costs and benefits arising from the proposals.

In the course of these discussions, the following points were especially addressed:

- types of refundable packaging;
- deposit amount;
- logistics of sorted and separated packaging (e.g. reverse collection);
- the operator and its settings;
- collection points (shops, petrol stations, on-line retailers – size, etc.);
- the size of sales areas and their gradual integration;
- purchasing entities;
- restricting the production of beverage packaging and making it compulsory, as in the case of beer bottles, for part of it to be in glass;
- inclusion or non-inclusion of bottles for dairy products;
- the possibility for the Operator to build its own network;
- on-line sales;
- collection network size;
- deposit amount;
- the use of unreturned deposits;
- fines and supervisory mechanisms.

Resulting system parameters

- centralised deposit system (one system), the system operator is a non-profit joint-stock company owned solely by the entities placing the relevant beverage packaging on the market or by the final sellers, or by private law corporations exclusively associating these persons. The operator is prohibited from operating waste management facilities. The operator is obliged to create, manage, and finance a deposit system, achieve a minimum level of waste collection for selected deposit packaging, conduct awareness-raising activities, and reimburse the final sellers for the funds expended on the payment of deposits and demonstrably incurred collection costs, including capital investments.
- authorisation of the operator on the basis of a request submitted to the Ministry;
- plastic beverage bottles and metal beverage containers are subject to a deposit of at least CZK 4;
- bottles or metal beverage containers are refunded through shops with a sales area from 50 m^2, with gradual inclusion from larger to smaller (first all above 400 m^2). The size of the sales area was determined based on negotiations with dealers' representatives to prevent the departure of customers from smaller shops to larger ones (for example, small rural shops could lose additional customers, but now could even be at an advantage);
- on-line sellers will be subject to the same obligation as traditional sellers, who will be obliged to take back waste from selected deposited single-use packaging, with the exception of the creation of a collection point. The seller will take back the goods when delivering them to the end user, in a quantity that can be taken back during the delivery of the goods and is customary for the order of the end user;
- exemption for shops with where technical adaptation is impossible (historical buildings, etc.);

  set handling fee covering the costs of operation;

- exemption in catering and hospitality establishments where consumption from disposable packaging takes place directly on the premises.

Connection points

- around 10,000 new collection points on the part of retailers – mandatory;
- around 1,000 filling stations – mandatory;
- potentially up to 2,100 municipalities with a population of over 300 without a shop—if they wish to participate in the Operator's system, the Operator is obliged to accept them;
- In the case of including shops up to 50 m^2, there are approximately 5,500 additional locations.

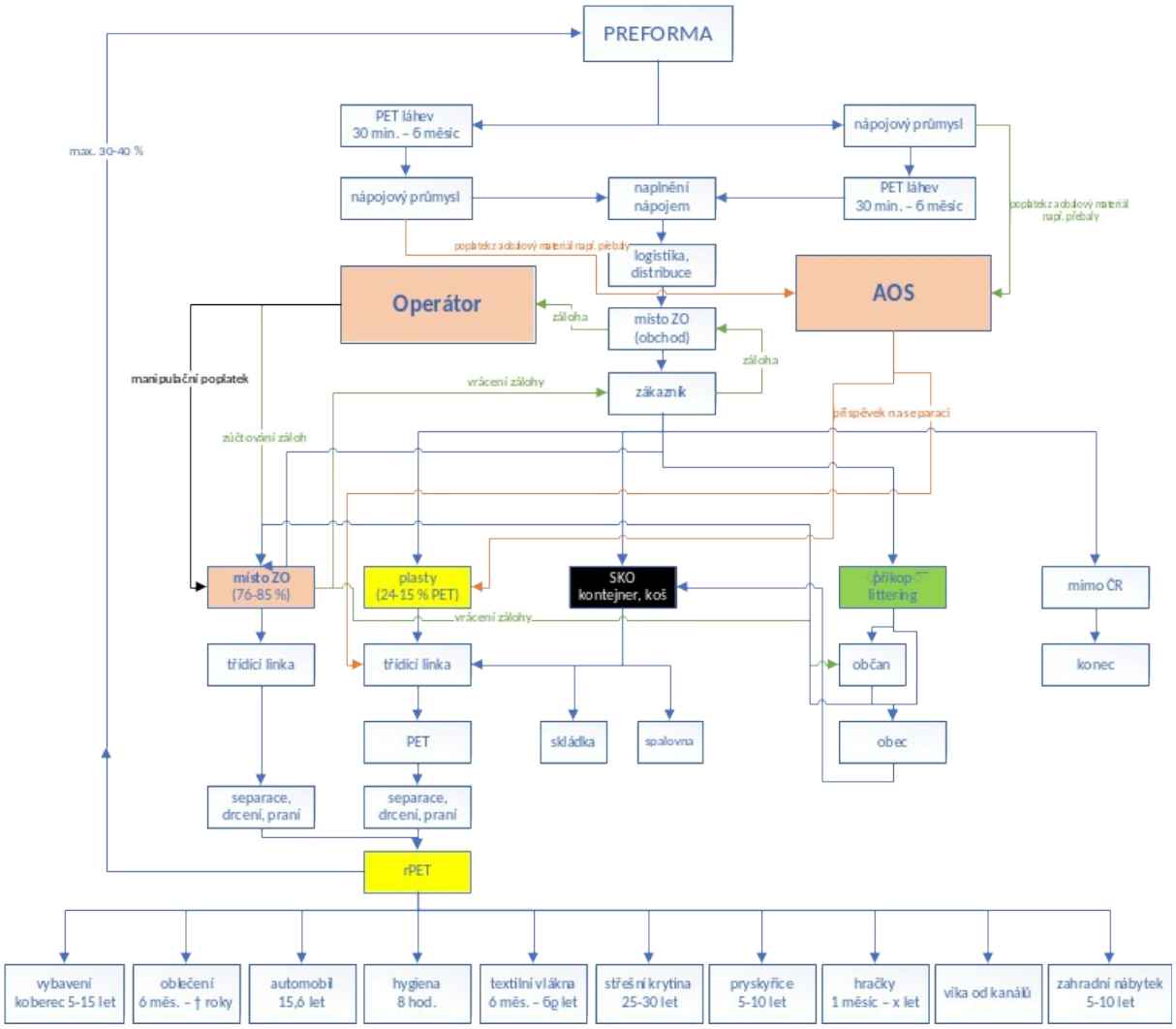


Figure 10: PET – situation in a traditional deposit system

PREFORMA	PREFORM
max. 30-40 %	max. 30-40%
PET láhev 30 min. – 1 měsíc	PET bottle 30 min – 1 month
nápojový průmysl	beverage industry
naplnění nápojem	filling with beverage
logistika, distribuce	logistics, distribution
nápojový průmysl	beverage industry

PET láhev 30 min. – 1 měsíc	PET bottle 30 min – 1 month
poplatek za obalový materiál např. přebaly	fee for packaging material, e.g., covers
poplatek za obalový materiál např. přebaly	fee for packaging material, e.g., covers
Operátor	Operator
AOS	APC
záloha	deposit
místo ZO (obchod)	return point (shop)
zákazník	customer
vrácení zálohy	deposit return
manipulační poplatek	handling fee
zúčtování záloh	clearing of deposits
příspěvek na separaci	separation allowance
místo ZO (76-85 %)	return point (76-85%)
třídící linka	sorting line
separace, drcení, praní	separation, crushing, washing
plasty (24-15 % PET)	plastic (24-15% PET)
třídící linka	sorting line
PET	PET
separace, drcení, praní	separation, crushing, washing
rPET	rPET
vrácení zálohy	deposit return
SKO kontejner, koš	MMW container, bin
skládka	landfill
spalovna	incinerator
„příkop“ littering	‘ditch’ littering
občan	public
obec	municipality
mimo ČR	outside the Czech Republic
konec	end
vybavení koberec 5-15 let	carpet 5-15 years
oblečení 6 měs. – 3 roky	clothing 6 months – 3 years
automobil 15,6 let	car 15.6 years
hygiena 8 hod.	hygiene 8 hrs.
textilní vlákna 6 měs. – 15 let	textile fibres 6 months – 15 years
střešní krytina 25-30 let	roof covering 25-30 years
pryskyřice 5-10 let	resin 5-10 years
hračky 1 měsíc – x let	toys 1 month – x years
víka od kanálů	manhole covers
zahradní nábytek 5-10 let	garden furniture 5-10 years

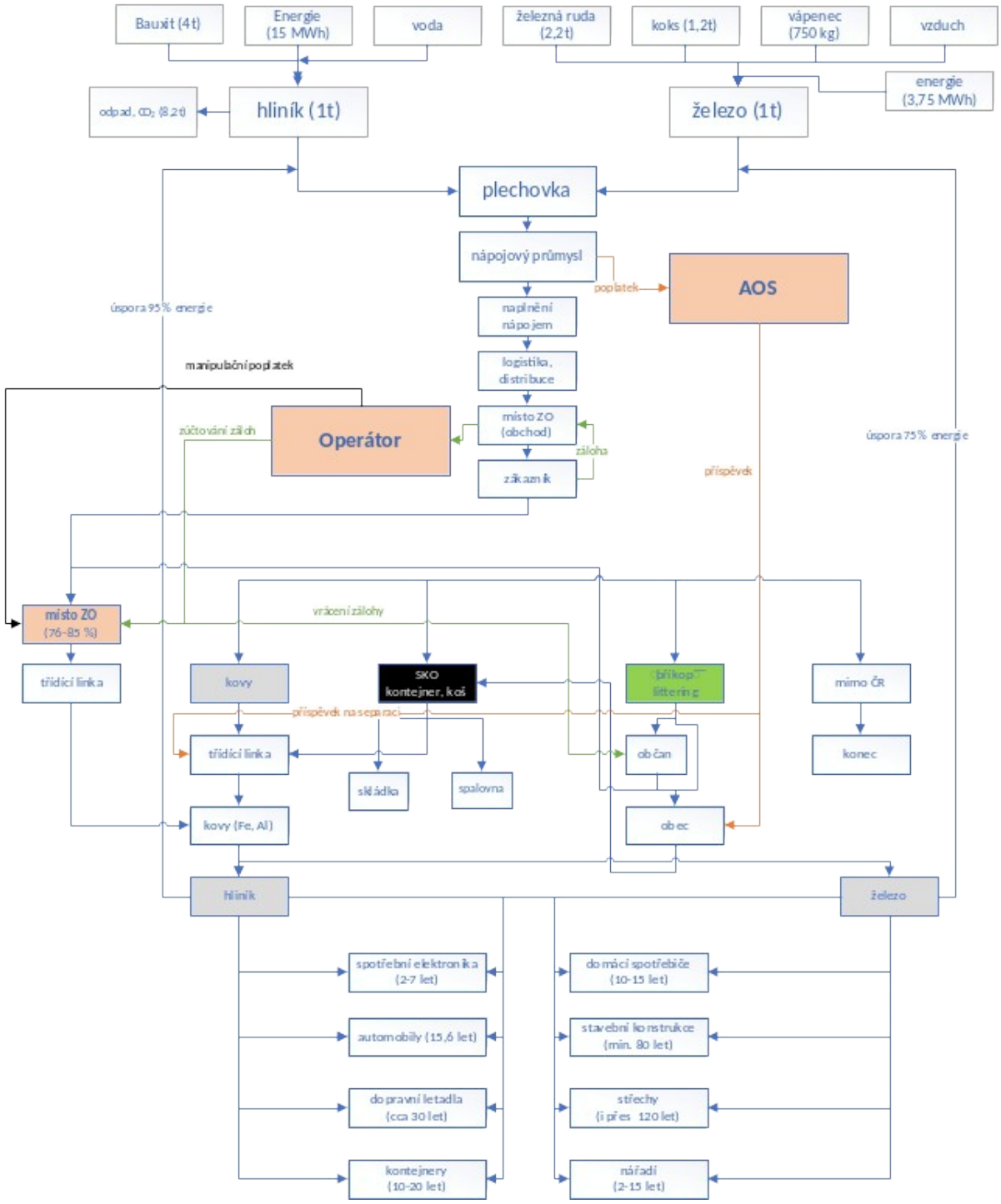


Figure 11: Metals – situation in a classic deposit system

Bauxit (4t)	Bauxite (4 t)
Energie (15 MWh)	Energy (15 MWh)
voda	water
železná ruda (2,2t)	iron ore (2.2 t)
koks (1,2t)	coke (1.2 t)
vápenec (750 kg)	limestone (750 kg)
vzduch	air
odpad, CO_2 (8,2t)	waste, CO_2 (8.2 t)
hliník (1t)	aluminium (1 t)

železo (1t)	iron (1 t)
energie (3,75 MWh)	energy (3.75 MWh)
úspora 95 % energie	95% energy savings
manipulační poplatek	handling fee
zúčtování záloh	clearing of deposits
plechovka	can
nápojový průmysl	beverage industry
naplnění nápojem	filling with beverage
logistika, distribuce	logistics, distribution
místo ZO (obchod) η	return point (shop) η
zákazník	customer
poplatek	fee
záloha	deposit
AOS	APC
příspěvek	contribution
úspora 75 % energie	75% energy savings
Operátor	Operator
místo ZO (76-85 %)	return point (76-85%)
třídící linka	sorting line
vrácení zálohy	deposit return
kovy	metal
třídící linka	sorting line
kovy (Fe, Al)	metals (Fe, Al)
hliník	aluminium
příspěvek na separaci	separation allowance
SKO kontejner, koš	MMW container, bin
skládka	landfill
spalovna	incinerator
„příkop“ littering	‘ditch’ littering
občan	public
obec	municipality
mimo ČR	outside the Czech Republic
konec	end
železo	iron
spotřební elektronika (2-7 let)	consumer electronics (2-7 years)
automobily (15,6 let)	cars (15.6 years)
dopravní letadla (cca 30 let)	passenger planes (approx. 30 years)
kontejnery (10-20 let)	shipping containers (10-20 years)
domácí spotřebiče (10-15 let)	household appliances (10-15 years)
stavební konstrukce (min. 80 let)	building structures (minimum 80 years)
střechy (i přes 120 let)	roofs (even over 120 years)
nářadí (2-15 let)	tools (2-15 years)

Returnable packaging

- plastic beverage bottle or metal container with a capacity of 0.1–3 litres for the following types:

a) all non-alcoholic beverages in plastic beverage bottles with the exception of milk, milk drinks, milk-based drinks (including yoghurt drinks) and iced coffee with milk;
b) other alcoholic beverages;
c) fruit wines, other wines, cider, perry and mead;
d) beer and beer-based beverages;
e) beverage concentrates, including syrup;
f) oil, vinegar.

Deposit system exceptions

The deposit system will not apply to single-use beverage containers that

- are provided by a road, air, water, or rail transport operator under the jurisdiction of the Czech Republic and performing passenger transport on international routes;
- are supplied with goods exempt from VAT or excise duty and intended for sale in the transit area of international airports and ports or for supplying aircraft or ships that immediately leave the European Union;
- are transported from the customs territory of the European Union;
- are used to bottle the beverage directly at the point of sale (an exception will be made for beverages that are bottled directly at the point of sale in their packaging – e.g. cask wines in plastic bottles);
- are provided in aggregate quantities of less than 100 kg per calendar year (specific forms of sale – markets, etc.).

Table 7: Minimum collection rate of waste from selected returnable single-use packaging

Type of waste from selected returnable single-use packaging	Year	Minimum level of return (% by weight of packaging placed on the market)
Waste plastic beverage bottles	2026	72
	2027	82
	2028	87
	2029 and beyond	91.5
Waste metal beverage containers	2026	72
	2027	82
	2028	87
	2029 and beyond	90

Stakeholders according to economic activity

- retail sale in non-specialised shops (code CZ-NACE 47.1) where the size of the sales area exceeds 50 m^2 and the food and beverages in the shop are not only ancillary goods;
- retail sale of food, beverages and tobacco products in specialised shops(CZ-NACE 47.2), where the size of the sales area exceeds 50 m^2 and the food and beverages in the shop are not only ancillary goods,
- retail trade of motor fuels in specialised shops (CZ-NACE 47.3, including charging stations if the sales area exceeds 50 m^2;

The above entities are obliged, as the final seller:

- to charge a deposit on selected single-use packaging and comply with the amount of the deposit set by the operator;
- to indicate the amount of the deposit separately from the price of the product on the tax receipt;
- to keep separate accounting records of the price of the product and the amount of the deposit;
- to ask the operator to conclude a contract to ensure the purchase of waste from selected deposited single-use packaging within 45 days of receipt of the operator's notification of commencement of activity;
- to register the place of performance of the activity with the operator;
- to ensure the collection of waste from selected deposited single-use packaging, in the form of purchase at the place of its economic activity throughout its operating hours, without limitation of quantity and without connection to the purchase of goods;
- to refund deposits in full, taking into account the conditions laid down for refund;
- to provide the operator with the cooperation necessary to fulfil its obligations;
- to keep records of selected refundable single-use packaging and waste thereof and provide data to the operator to the extent and in the manner specified by the operator.

Last seller selling through means of distance communication

These are on-line retailers (e.g. Rohlik.cz, Kosik.cz, iTesco.cz, etc.) with their own delivery. These vendors fulfil the same requirements as the above-mentioned entities outside a collection point. This final seller collects waste from selected returnable single-use packaging when delivering goods to the end user, in a quantity that can be taken back during the delivery and is customary for the end user's order.

Registration and record-keeping fees

- for inclusion in the List CZK **2000** .
- for issuing a decision on authorisation in the amount of CZK **50,000** ;
- for keeping records, a registration fee in the amount of CZK **2000** for each entity with whom the authorised company has concluded a collective compliance agreement;
- the revenue from registration and record-keeping fees is split as follows: **50%** is allocated to the budget of the State Environmental Fund of the Czech Republic **and 50% to the state budget**, while the Ministry of the Environment and the Ministry of Industry and Trade (CTI) will cover the personnel costs necessary to manage the agenda.

1.6.5 Option 2 – expansion of the sorting network

This Option assumes that collection and transport will take place in a similar way as in Option 0, but there will be an expansion of collection.

Intensification and expansion will be necessary in the following areas:

1. The door-to-door system is being called for by some municipalities and especially the Czech Waste Management Association, which plans to expand the collection network by 1.7 million new waste containers to cover the rest of the Czech Republic, which currently does not have D2D collection (currently, D2D is available for 300 to 400 thousand family homes).
2. Public places are another point that will need to be expanded. Currently, a large part of the normal collection of waste bins at stops, squares, and public places does not allow for separate collection.
3. Another necessity for intensification is the extension of the collection network to shopping centres, which do not offer customers the option of separate waste collection.

Option 2 is considered in two sub-options: either expansion through separate collection or expansion through multi-commodity collection. In practical implementation, the choice would be up to municipalities according to local network expansion options. Parameters are summarized in the following table:

Table 8: Network expansion overview

	Separate collection		**Multi-commodity collection**
Equipping the Czech Republic for maximum D2D	**Separate collection of PET**	**Separate collection of AL**	**Joint collection of PET and AL**
Number of containers	1,700,000	1,700,000	1,700,000
Increasing the public network of waste bins	**Separate collection of PET**	**Separate collection of AL**	**Joint collection of PET and AL**
Intensification of the RETAIL/Filling stations network	5,000	5,000	5,000
Intensification of bins enabling separation towns	600 towns 200 bins	600 towns 200 bins	600 towns 200 bins
Intensification of bins public building	6000 buildings	6000 buildings	6000 buildings
Intensification of bins bus stop	12,865 baskets at a stop	12,865 baskets at a stop	12,865 baskets at a stop
Intensification of bins train stations	8595 bins	8595 bins	8595 bins

Revision of current APC fees for packaging materials (eco-modulation)

- Revision of the current fees for packaging materials, to ensure that the entire system is not financed by selling PET material, but rather that each type of waste covers the costs of its collection and recycling or other recovery, in accordance with the ‘polluter pays’ principle.

Registration and record-keeping fees

- for inclusion in the List CZK **2000** ;
- for issuing a decision on authorisation in the amount of CZK **50,000** ;

- for keeping records, a registration fee in the amount of CZK **2000** for each entity with whom the authorised company has concluded a collective compliance agreement;
- the revenue from registration and record-keeping fees is split as follows: **50%** is allocated to the budget of the State Environmental Fund of the Czech Republic **and 50% to the state budget**, while the Ministry of the Environment will cover the personnel costs necessary to manage the agenda.

1.6.6 Option 2+ – expansion of sorting network and introduction of DDRS

Option 2+ is identical to Option 2 in the basic parameters of maintaining and extending the existing sorted waste network, but a **DDRS (Digital Deposit Return System)** (operating as part of sorted collection) is introduced:

- each package has its own unique QR code, each collection container has its own QR code;
- the customer pays a deposit at the time of purchase;
- creation of an application that can manage the entire system, including determining the location of the container and the user;
- digital containers that can be used by people without a smartphone or mobile data (separately for plastic beverage bottles, separately for metals, jointly for plastic beverage bottles and metals).

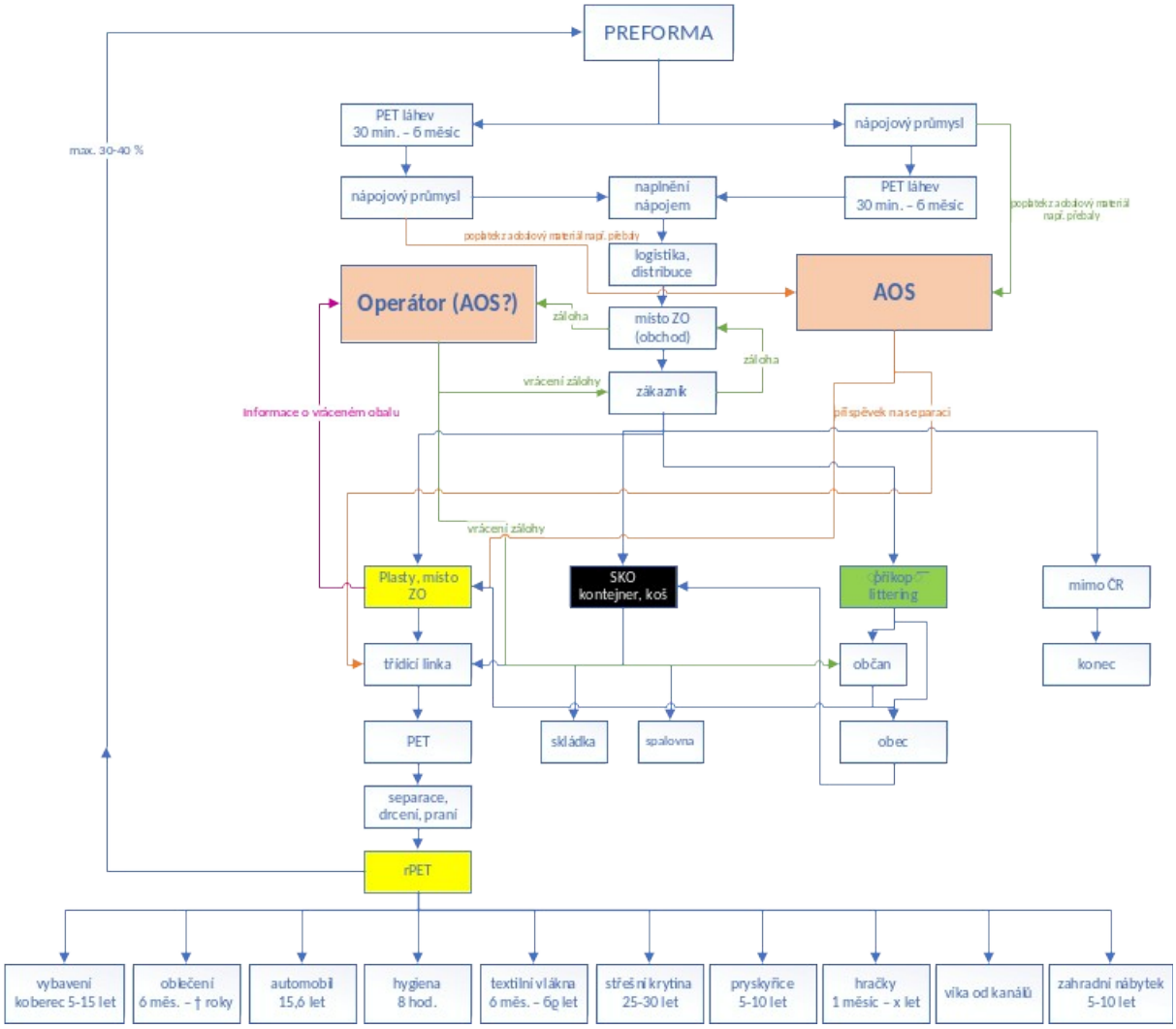


Figure 12: PET – situation with DDRS

PREFORMA	PREFORM
max. 30-40 %	max. 30-40%
PET láhev 30 min. – 1 měsíc	PET bottle 30 min – 1 month
nápojový průmysl	beverage industry
nápojový průmysl	beverage industry
PET láhev 30 min. – 1 měsíc	PET bottle 30 min – 1 month
poplatek za obalový materiál např. přebaly	fee for packaging material, e.g., covers
naplnění nápojem	filling with beverage
logistika, distribuce	logistics, distribution
místo ZO (obchod)	return point (shop)
zákazník	customer
Operátor (AOS?)	Operator (APC?)
záloha	deposit
vrácení zálohy	deposit return
záloha	deposit
AOS	APC
poplatek za obalový materiál např. přebaly	fee for packaging material, e.g., covers

Informace o vráceném obalu	returned packaging information
vrácení zálohy	deposit return
příspěvek na separaci	separation allowance
Plasty, místo ZO	plastics, return point
třídící linka	sorting line
PET	PET
separace, drcení, praní	separation, crushing, washing
rPET	rPET
SKO kontejner, koš	MMW container, bin
skládka	landfill
spalovna	incinerator
„příkop“ littering	‘ditch’ littering
občan	public
obec	municipality
mimo ČR	outside the Czech Republic
konec	end
vybavení koberec 5-15 let	carpet 5-15 years
oblečení 6 měs. – 3 roky	clothing 6 months – 3 years
automobil 15,6 let	car 15.6 years
hygiena 8 hod.	hygiene 8 hrs.
textilní vlákna 6 měs. – 15 let	textile fibres 6 months – 15 years
střešní krytina 25-30 let	roof covering 25-30 years
pryskyřice 5-10 let	resin 5-10 years
hračky 1 měsíc – x let	toys 1 month – x years
víka od kanálů	manhole covers
zahradní nábytek 2-10 let	garden furniture 2-10 years

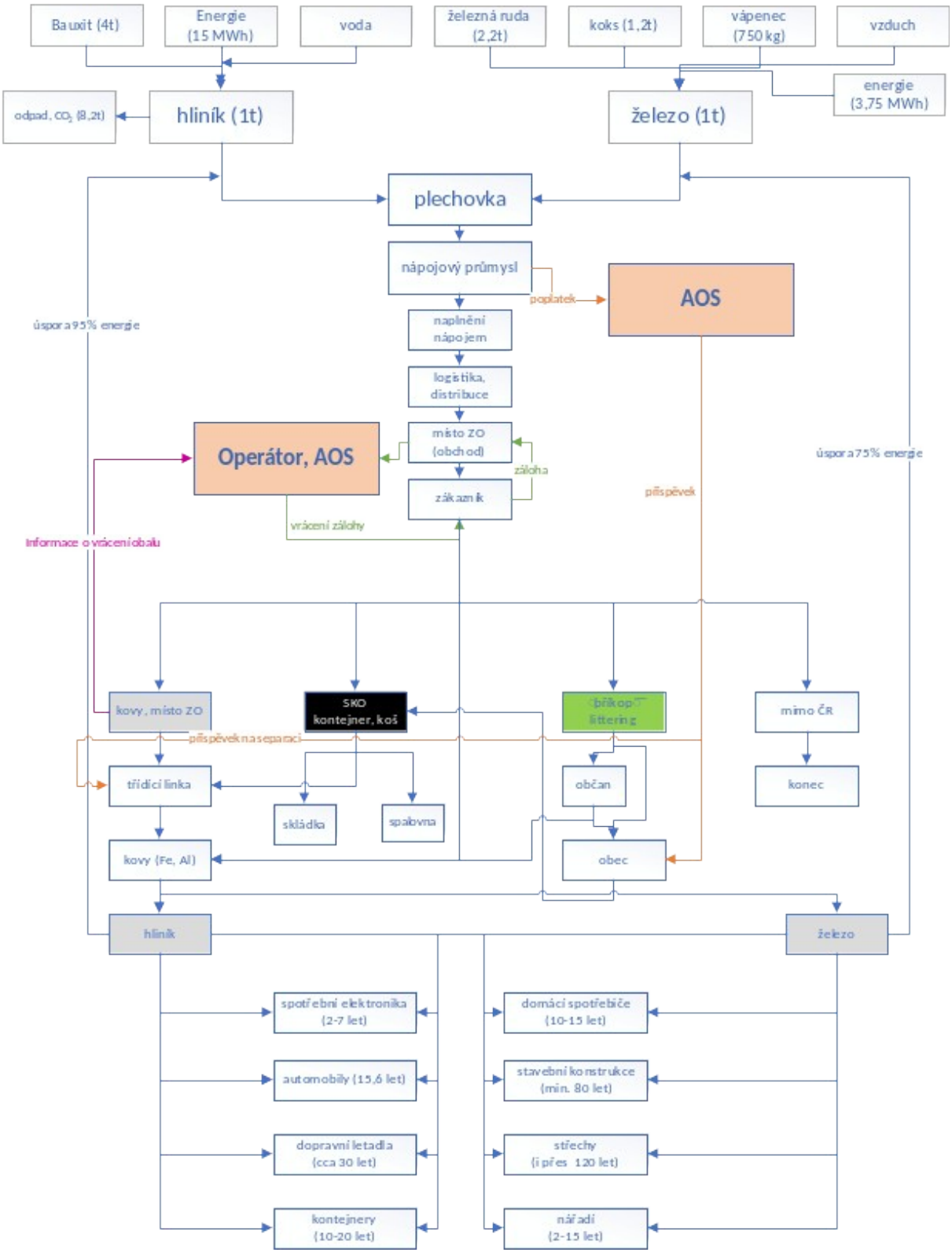


Figure 13: Situation – metals with DDRS

Bauxit (4t)	Bauxite (4 t)
Energie (15 MWh)	Energy (15 MWh)
voda	water
železná ruda (2,2t)	iron ore (2.2 t)
koks (1,2t)	coke (1.2 t)

vápenec (750 kg)	limestone (750 kg)
vzduch	air
odpad, CO_2 (8,2t)	waste, CO_2 (8.2 t)
hliník (1t)	aluminium (1 t)
železo (1t)	iron (1 t)
energie (3,75 MWh)	energy (3.75 MWh)
úspora 95 % energie	95% energy savings
plechovka	can
nápojový průmy	beverage industry
naplnění nápojem	filling with beverage
logistika, distribuce	logistics, distribution
místo ZO (obchod)	return point (shop)
zákazník	customer
poplatek	fee
AOS	**APC**
Operátor, AOS	**Operator, APC**
vrácení zálohy	deposit return
záloha	deposit
příspěvek	contribution
úspora 75 % energie	75% energy savings
Informace o vrácení obalu	Packaging return information
kovy, místo ZO	metals, return point
příspěvek na separaci	separation allowance
SKO kontejner, koš	MMW container, bin
„příkop“ littering	‘ditch’ littering
mimo ČR	outside the Czech Republic
třídící linka	sorting line
kovy (Fe, Al)	metals (Fe, Al)
hliník	aluminium
skládka	landfill
spalovna	incinerator
občan	public
obec	municipality
konec	end
železo	iron
spotřební elektronika (2-7 let)	consumer electronics (2-7 years)
automobily (15,6 let)	cars (15.6 years)
dopravní letadla (cca 30 let)	passenger planes (approx. 30 years)
kontejnery (10-20 let)	shipping containers (10-20 years)
domácí spotřebiče (10-15 let)	household appliances (10-15 years)
stavební konstrukce (min. 80 let)	building structures (minimum 80 years)
střechy (i přes 120 let)	roofs (even over 120 years)

nářadí (2-15 let)	tools (2-15 years)

1.7 Assessment of costs and benefits

1.7.1 In general on the impact assessment

The options differ from one another, particularly in terms of impacts on state and other public budgets, including impacts on municipalities, impacts on international competitiveness and the business environment, social impacts (including families) and consumers, and especially in relation to environmental objectives, as identified by the problems and targets of the draft.

For the remaining impacts, the options do not fundamentally differ from each other and are summarised here:

1.7.1.1 Impacts related to non-discrimination and gender equality

By generating a certain type of economic activity, the draft is linked to the integration of men and women into the labour market. In the area of administrative work, it has a greater impact on women, whereas in the case of technical jobs (such as a garbage collector), it has a greater impact on men. However, the legislative options of the draft cannot influence the impacts related to the participation of women and men in the labour market or their position within management structures.

At present, the different impacts of waste management on men and women can be seen in the areas of a) household care, b) labour market, and c) decision-making:

- Women in the Czech Republic spend an average of 15 hours a week caring for the household, while men only spend about 8 hours.[17] Domestic work also includes the management of household waste (especially its sorting and subsequent regular delivery to containers or, in the case of deposited packaging, to collection points).
- It can be expected that the labour market in the waste management sector is vertically segregated, i.e. that the representation of women and men varies at different levels of the employment hierarchy. A higher proportion of women is likely to be among sorting line workers rather than among the managers of these entities. This is linked to the possible lower pay of women working in this field. With regard to the systemically low unemployment rate in the Czech Republic, a possible change brings opportunities for women and their retraining in the labour market. Vertical segregation can be observed across sectors of the economy. It is associated with persistent, deeply rooted, and widely shared beliefs that male qualities are more valuable than female qualities, that men are generally more competent than women, and that their qualities better correspond to positions where authority, physical, and mental strength are needed. There is a lack of available data on the gender of employees across waste management entities to sufficiently substantiate this conclusion.
- This segregation of women and men in the labour market leads to an uneven representation of women and men in decision-making bodies (in the case of waste companies, corporate boards). The direction and activities of these companies are fundamentally influenced by decisions taken at the management level and are thus

[17] See: Indicator: On average, how many hours per week are you involved in cooking and/or housework outside of paid work? (mean hours, 18+ population) | Gender Statistics Database | European Institute for Gender Equality (europa.eu)

shaped only by a limited group of society, excluding the experience of under-represented groups such as women or people with disabilities. The waste management sector builds on mutual cooperation between actors, which is an important condition for a functioning circular economy. Part of waste management is also the cooperation of consumers in handling waste, and waste management has an impact on natural persons. It is therefore in the interest of society as a whole that women and men are equally involved at all levels of waste management.

1.7.1.2 Impacts on the performance of the state statistical service

The current situation does not present any impacts that would go beyond statutory ones in the area of the performance of the State Statistical Service.

1.7.1.3 Corruption risks

The draft includes standard administrative procedures related to the registration and record-keeping of waste management entities; corruption risks are addressed within the framework of standard administrative management tools.

Similarly, in the case of the establishment of a new collective deposit system (either under Option 1 or Option 2+) - the Operator is a joint-stock company authorised by the MoE to fulfil the obligations of other manufacturers, and corruption risks were identified during the authorisation. It is possible to file an administrative appeal against the authorisation, as well as a review within the administrative justice system.

Corruption risks associated with the setting of fees for manufacturers were identified in the Operator's operations. Tariffs must be published and the terms of contracts must be laid down uniformly for all manufacturers, ensuring that no person or type of packaging is unjustifiably placed at a competitive disadvantage. Breaches of these obligations constitute an infraction by an authorised company, for which remedial measures and a fine may be imposed.

From the perspective of corruption risks, however, this is not a novelty, as the MoE already manages and decides on the authorisation of several collective systems (EPR – extended producer responsibility systems):

- waste electrical and electronic equipment;
- packaging waste;
- waste batteries and accumulators;
- end-of-life vehicles;
- waste tyres and
- selected single-use plastic products (cigarette products with filters, balloons, wet wipes).

The operator is a joint-stock company authorised by the MoE to fulfil the obligations of other producers; corruption risks during authorisation were identified. It is possible to file an administrative appeal against the authorisation, as well as a review within the administrative justice system.

Corruption risks associated with the setting of fees for manufacturers were identified in the Operator's operations. Nevertheless, the draft stipulates that tariffs must be published and

the terms of contracts must be established uniformly for all producers, so that no entity or type of packaging is unjustifiably placed at a competitive disadvantage. Breaches of these obligations constitute an infraction by an authorised company, for which remedial measures and a fine may be imposed.

1.7.1.4 Impacts on national security or defence

The current situation does not have any impact on national security or defence.

1.7.2 Option 0 – without additional measures

1.7.2.1 Impacts on the national budget and other public budgets

Infringement

Option 0 will not lead to meeting the targets under EU legislation (see environmental impacts); if the PPWR Regulation is adopted, Option 0 does not adopt measures of the PPWR Regulation (i.e. the introduction of a deposit for plastic beverage bottles and metal beverage packaging, or Option 0 does not represent a meaningful way to request or receive an exemption from this obligation).

It is therefore very likely that infringement proceedings will be initiated by the European Commission, where the following can then be expected:

- a decision to adopt additional measures at the national level between 2026 and 2029, with the impacts equating to the costs of the other options (depending on the future option chosen);
- in the absence of additional measures, the European Commission would be successful in an action before the European Court of Justice against the Czech Republic, with the minimum amount of the lump sum fine in the case of the Czech Republic being €1,736,000. The minimum penalty for the Czech Republic is €2500 per day until the Czech Republic remedies the situation. With regard to judicial practice, it can be realistically expected that the amount of the lump sum fine and daily payment will not be near their lower limits, i.e. in the case of the Czech Republic it could be about € 10,000 per day (until the Czech Republic takes corrective action) and a € 2 million lump sum. This means CZK 50 million and higher. Other impacts could include difficulties in accessing EU funds.

Registration and record-keeping fees

- the annual income of the State Environmental Fund of the Czech Republic is approximately CZK 17 million .

1.7.2.2 Impacts on international competitiveness of the Czech Republic

Option 0 represents negative impacts on the international competitiveness of the Czech Republic. The implementation of ESG standards in the Czech banking sector, which has subscribed to the principles of sustainability financing, has a significant impact on firms' competitiveness. It gradually takes climate and environmental indicators into account as part of its risk monitoring and loan portfolio management. The readiness of companies to implement and report ESG standards and the compliance of activities with the EU Taxonomy for Sustainable Finance therefore has a direct impact on their ability to secure investment financing by the banking sector, which will seek and prioritize investment projects in line with

the
decarbonisation trajectory of the Czech Republic and the introduction of other sustainability standards, including in the area of the circular economy. In the context of the circular economy, for companies this will mean, for example, evaluating the way they use resources in their activities, identifying the related risks and opportunities, and then reporting this as part of sustainability reporting.
Bearing in mind that, as part of ESG reporting and related sustainability finance tools, companies have:

- an obligation to publish the targets set by the entity regarding resource use and the circular economy;
- an obligation to publish information on waste, in relation to material impacts, risks and opportunities;
- a description of the materials/resources used, including: products (and packaging), critical raw materials and rare earths, water, and own devices used in the undertaking's activities and upstream value chain;

the lack of preparation of public infrastructure for the circular economy (i.e. in the case of this proposal in the field of beverage packaging) will have a direct negative impact on the possibilities for companies to take ESG standards into account and thus on the availability of commercial financing and international competitiveness – including the quality of the business environment in the Czech Republic.

1.7.2.3 Impacts on the business environment

Option 0 - without the adoption of additional legislative measures it does not have a direct impact on the business environment (except for those mentioned in the impacts on competitiveness); however, it should be noted that the current system is also based on intrinsic activities by the market and municipalities. The main trends are outlined below.

At the same time, however, Option 0 assumes the need to introduce a deposit system between 2026 and 2029 due to non-compliance with targets, with similar impacts as Option 1 or Option 2+, OR EU sanctions against the Czech Republic. This impact is not named below (or refers to Option 1 or Option 2+).

Producers and distributors of goods in packaging within the scope of APC

Without direct impacts, however, there will be a trend towards reducing single-use packaging, and fees APC may increase due to covering the costs of increasing littering.

The authorized packaging company EKO-KOM, a.s. operates a nationwide system that ensures the collection and recovery of packaging waste – pursuant to Act No 477/2001 on packaging.

The EKO-KOM system is an EPR (Extended Producer Responsibility) system based on cooperation between industrial enterprises (clients), cities, and municipalities. This non-profit system ensures that waste from used packaging is sorted by the consumer, collected by collection technology, further sorted, and finally used as a secondary raw material.

Figure 14: Non-profit EKO-KOM system

IKLIENTI platba 100 %	CLIENTS payment 100%
balený výrobek	packed product
SPOTŘEBITELÉ 2,9 %	CONSUMERS 2.9%
propagace třídění a využití odpadu	promotion of waste sorting and recovery
OBCE 63,5 %	MUNICIPALITIES 63.5%
zpětný odběr a zajištění sběrné sítě	take-back and providing the collection network
DOTŘIĎOVACÍ LINKY 13,4%	SORTING LINES 13.4%
úprava obalových odpadů	treatment of packaging waste
ZPRACOVATELÉ	PROCESSORS
využití a přímá podpora recyklace obalů, sběr ZO 6.3%	recovery and direct support of packaging recycling, collection of business waste 6.3%
nové	new
výrobky	products
ZÁKONNA REZERVÁ	STATUTORY RESERVE
STÁT 0,1 %	STATE 0.1%
Odvody statu (poplatkly SFZP, dane)	State levies (SEF fees, taxes)
finanční tok	financial flow
obalový tok	packaging flow
NEZISKOVÝ SYSTÉM	NON-PROFIT SYSTEM
Administrativní řízení: 1,3%	Administrative proceedings: 1,3 %
Evidence obalů a odpadů z obalů:4%	Records of packaging and packaging waste: 4%
Audity a kontroly: 0,8	Audits and checks: 0.8

v

The authorised packaging company currently covers approximately 20 percent of waste management costs for municipalities through separate collection contributions.[18]. Contributions from industrial enterprises (clients) do not reflect the real value of the material after sorting and do not encourage them to introduce packaging made from more recyclable materials. The waste collection and sorting system is thus dependent on income from a single commodity – PET bottles.

Registration fees represent a cost to producers of 17 million. annually.

[18] https://eceta.cz/wp-content/uploads/2022/06/Obce_zalohy2022.pdf

Collection companies

At present, in some municipalities, as well as in Prague in cooperation with Pražské služby a.s., there is a gradual introduction of so-called multi-commodity collection (i.e. collection of plastic, beverage cartons, and metals into one container). This should simplify the collection network, broaden it and, of course, significantly increase yields, and reduce collection costs, containers, etc. On the other hand, these measures do not solve the problem of ensuring the quality and purity of the material to ensure its full circularity.

The total cost of collection from the current 400,000 containers (linked to plastic beverage bottles and metal beverage containers) is estimated at approximately CZK 450 million annually.

An example of costs is the system in Prague (approximately 10% of the population), where an average of 14 vehicles are used for the collection of plastics and metals by PS a.s.. About 13,000 km are driven per week for these commodities. The crew of a garbage truck consists of the driver and two garbage collectors, while for the collection of bottom discharge containers, it consists of the driver and the driver's assistant. The estimated costs of the City of Prague for the system collection of these commodities for 2023 are approximately CZK 225 million (source: PSAS). The approximate cost for a collection company per vehicle is approximately CZK 10–15k per day of operation.

Prague Services services litter bins of various types for different clients (TSK [road manager], city districts, THMP [lighting manager], Prague Transit Company, Trade Centre Prague, Lesy Praha [forest management], etc.). Of these, some bins are directly owned by PSAS, while for others, they merely provide collection. Bins are located on roads, in urban greenery, in city parks, at stops, squares, embankments, etc. Just for the City of Prague, specifically for its city administrator, which is the Technical Road Administration of Prague, this company services approximately 7000 bins. These baskets are directly owned by PSAS and, in this case, it ensures both their collection and maintenance, such as washing, possible replacements with new ones, and similar tasks.

Sorting lines

There are currently 125 sorting lines in the Czech Republic (source: EKO-KOM). The waste sorting method may differ from one sorting line to another. New facilities are capable of dividing sorted waste into up to 15 output fractions, thereby increasing the overall proportion of sorted materials sent for recycling. In two-shift operation, the line is capable of processing 15,000 tonnes of waste per year, which covers Prague's annual plastic production.

The new sorting lines can also handle waste enclosed in bags, which are torn open at the beginning of the sorting line by a mechanical opener. Further, coloured and clear foils are sorted, and the largest impurities and undesirable admixtures are removed. Ferrous metals are separated by a strong magnet, as these metals and large impurities could damage equipment in the subsequent automated process.

As part of the sorting process, the waste then goes to the largest part of the line, which is the ballistic separator. In it, the material is sorted according to size and properties into 3 fractions. Minor contaminants up to 5 cm and flat residual material is then used for energy recovery. Other material is sorted by the line using optical sensors and compressed air streams into different types of plastics (HDPE, PP, PS, and PET), different colours of PET

bottles (clear, blue, green, mixed, etc.), and other 'non-plastic' material. Non-ferrous metals are sorted from this residue using eddy current technology. In addition to the mentioned types of plastics, it is also possible to sort beverage cartons on the line, utilizing the presence of plastic LDPE film. The sorted material is temporarily stored within the premises in boxes. The sorting line also includes a press that compacts individual sorted fractions into bales for subsequent dispatch.

The sorted types of plastics are used by processors and producers of plastic products – in recycled building elements, outdoor furniture, new PET bottles, textiles made of PET fibres, and other uses. For the remaining plastic material – discard – the quantity of which is not negligible, recovery in cooperation with Orlen Unipetrol is currently an option.

The quality of waste collected from the public, i.e. how people sort their waste into coloured containers, will play an important role in the efficiency of sorting and the smooth operation of the new line.

Multi-commodity waste collection, to which, for example, the City of Prague has been gradually transitioning since autumn 2023, is also expected to support waste sorting. This is joint collection of plastics, metal packaging, and beverage cartons into one container. In Prague, these are yellow collection containers designated for the collection of plastic waste and beverage cartons. Multi-commodity collection increases the quantity of sorted components. It also reduces collection costs and, by removing some of the waste bins, frees up space in streets and public spaces. (source: Prague)

There are three automated sorting lines in the Czech Republic (Prague, Brno, Ostrava) out of a total of about 125 sorting lines. It is therefore possible to support business entities or municipalities and to innovate existing ones to new automated systems, thereby achieving higher yields from separate collection, as well as from MMW.

Both plastic beverage bottles and metal beverage containers are among the best-selling sorted components on the secondary raw materials market, and the economy of collection and subsequent processing is fundamentally dependent on these components. This leads to cross-financing, where the current system is economically dependent on PET, and also results in other producers of plastic packaging with lower recyclability not being economically compelled into eco-modulation, resulting in a large share of discards and a low rate of material recycling of sorted plastics. The total amount of cross-financing is estimated at CZK 260 million per year[19].

An example is the OZO Ostrava sorting line – the technology cost CZK 280 million . The main revenues consist of the sale of sorted commodities and a gate fee for the receipt of waste at the line. If we consider the income from the sale of Al metal beverage containers and PET, along with the support for these two sorted commodities by EKO-KOM, it amounts to 20-25 million annually. (This is not a contribution from EKO-KOM to municipalities for the collection system of separated plastics – garbage bins). Thus, at present, the system is balanced in terms of revenues and expenditures. PET bottles also cover the costs of sorting other types of plastic. (source: OZO Ostrava)

Within the scope of sorting of plastics, metals, and beverage cartons, so-called discards (non-recyclable plastic, which ends up, for example, as solid alternative fuel) represent up to 60% of collected plastics. The costs of their collection and sorting are currently not

[19] https://eceta.cz/wp-content/uploads/2022/06/Obce_zalohy2022.pdf

sufficiently covered by the contribution from EKO-KOM and, for sorting lines, represent a cost that is offset by the sale of sorted PET bottles, contrary to the principle of eco-modulation.

Producers using recycled PET (rPET), aluminium and metals for their production

Metals can be melted down and reused indefinitely, albeit with minimal loss, but the recycling of PET back into bottles is limited and currently takes place in minimal use in the beverage sector and especially in other areas, according to manufacturers' current needs, often into products that are no longer recyclable and with problematic uses for food contact. Collected aluminium most often ends up in a mixture of metals and can no longer be used for the production of aluminium products.

a) rPET is now commonly used to produce, for example:
- sanitary products (diapers, pads);
- textile fibres (vehicle accessories, clothing, household goods);
- roof covering;
- plastic toys;
- manhole covers;
- garden furniture;
- construction elements, etc.;

b) products made from aluminium or metals include, for example:
- consumer electronics;
- household appliances;
- transport industry (cars, planes, etc.);
- construction (roofs, tools, structures);
- etc.

Beverage producers with a mandatory share of recycled material in plastic bottles will have very limited access to raw material from the Czech Republic and will have to import recycled material of food contact quality from abroad.

Commercial companies

The costs associated with establishing compliance with the Act and ensuring separate collection are currently already an obligation to provide customers with the ability to sort waste within their operations, which most establishments do not ensure, and so part of this waste ends up in waste bins in front of shops or inside. In most cases, commercial companies have only mixed municipal waste bins, so all beverage packaging ends up in these bins, thus incurring costs associated with MMW.

Employers

Under § 2(1)(b) of Act No 309/2006 on ensuring additional conditions for health and safety at work, an employer must ensure that working conditions comply with safety and hygiene requirements. One of these requirements in this Act is that the workplace be supplied with water:

- 1.5 L/person at an outdoor workplace at temperatures up to 20 °C;
- 3 L/person in an outdoor workplace at temperatures above 20 °C;
- 3 L/person at a workplace where the activity is carried out using mining methods.

Furthermore, § 224(1) of Act No 262/2006, the Labour Code, states that the employer is obliged to create working conditions for employees that allow the safe performance of work, which is logically linked to water supply and drinking regime.

Drinking water is defined by § 3 of Act No. 258/2000 on the protection of public health. Simply put, it is intended for drinking, cooking, and preparing food and beverages. In simple terms, this means that the employer fulfils its obligation to provide employees with drinking water by ensuring there is free access to a tap with drinking water at the workplace.

However, water in PET bottles is the only option in certain sectors (e.g. construction). PET bottles and metal containers for beverages represent part of the waste produced by employees, the disposal of which is paid for by the employer or, to a large extent, becomes part of the separate collection paid for by municipalities in some sectors, and entrepreneurs are thus free-riders on the municipal system. At the same time, there is no obligation for employers to ensure separate collection within internal operations.

The new Waste Act, in Title I, 'GENERAL OBLIGATIONS', § 13(1), imposes general waste management obligations on everyone. In § 13(1)(c), it imposes an obligation to separate waste, i.e., to sort it. Many employers do not reflect this provision in their internal operations.

Sports associations, sports clubs, cultural institutions, etc.

According to consultations, there is an effort to completely eliminate plastic beverage bottles from sports. Sports associations and the Czech Olympic Committee recommend that organizers establish an accessible source of drinking water, or provide large containers with drinking water in cases where a suitable source is not available. They are pressing organisers to use returnable cups and supply official delegations with bottles that they can refill themselves at the sports grounds or hotel. Overall, sports federations and clubs will gradually and steadily transition to a system that does not use single-use containers.

Removing plastic beverage bottles from sports will entail an increase in the cost of implementing access to drinking water (for example, an outdoor tap), which must meet hygiene requirements. In the case of the installation of drinking fountains connected to the public water supply network (public water main), the water supply operator checks the quality of the supplied water according to the approved monitoring programme. If the water source for the drinking fountain is an individual water source (most often a well), then it is necessary to have an operating plan for this individual water source, which is approved by the health authority. In this case, the water quality is monitored by the operator of the individual drinking water source. The drinking fountain operator should carry out its regular maintenance.

All drinking fountains intended for public use need to be marked with the inscription ‘drinking water’.

1.7.2.4 Territorial impacts, including impacts on territorial self-governing units

A municipality that operates separate collection of municipal waste can participate in the EKO-KOM system, on the basis of the Cooperation Agreement on ensuring the collection and inclusion of the collection point in the municipal waste management system (hereinafter the ‘Agreement’). Under this agreement, the municipality is then entitled to remuneration for ensuring the take-back and subsequent recovery of packaging waste. The remuneration shall be calculated on the basis of a regular quarterly report on the quantities, types, and methods of management of recoverable components of municipal waste. The amount of the remuneration depends mainly on the quantity of waste sorted, and it increases with the

efficiency of the collection system. The remuneration helps to reduce the costs associated with the operation of a system for the collection of recoverable components of municipal waste. Option 0 will continue to gradually increase the efficiency of the current system and related activities (extension of multi-commodity collection, increase in the number of containers, increase in control, etc.). Municipalities and regions will strive to ensure that all steps lead to greater efficiency and reduced costs (e.g. investment in better sorting technology vs. reduced collection costs in the case of multi-commodity collection).

The sorting data, both for plastic beverage bottles and metal beverage containers, show that the current system is approaching its ceiling and without motivation or investment, the system will not achieve the necessary targets. For metal beverage containers, the situation is significantly worse. See the Environmental Impact Assessment.

The separate collection system has been evolving in the Czech Republic for over 25 years. In the long term, it has demonstrated results in gradually increasing the efficiency of collecting individual contained commodities and the whole as such. The commodities are sorted with regard to long-term legislative objectives, but collection and sorting often do not lead to material recovery. These objectives are actively pursued by an authorised packaging company, which is required by law to achieve them. All stakeholders in the chain, including municipalities, collection companies, sorting companies, recycling companies, etc., are also involved in meeting the targets. So far, the Czech Republic has always met the set targets with its separation system; future intensification of the system for this type of packaging represents further necessary investments (e.g., door-to-door systems for all family houses), noting that even with public motivation, it will be difficult to meet the targets.

To meet the objectives defined in the package of circular economy directives in 2018 and 2019, a specialised document was prepared that defined the strategy to achieve them. The document was subsequently released by the authorised packaging company under the name Strategie 21. The relevance of this document has also been confirmed by all key professional organisations in the waste collection and treatment sector, as well as by the Union of Towns and Municipalities of the Czech Republic. However, the document was criticized by EKO-KOM shareholders and other representatives of the beverage industry and was not consulted with them in any way. The main criticism concerned incorrect data regarding the amount of packaging, poorly conducted estimates of future growth for individual types of packaging on the market, and other arguments.

Trend impacts under Option 0:

- municipalities cover 40-50% of the costs of collecting municipal waste from sources other than fees collected from residents
- 20% of plastic beverage bottles placed on the market end up in mixed municipal waste and 66% of metal beverage containers end up in mixed municipal waste, i.e. they burden the municipal costs of mixed municipal waste (especially the landfill fee), which is otherwise without compensation from the APC.
- The current costs of collecting and transporting plastic beverage bottles and metal beverage containers (calculated from separate collection) amount to CZK 450 million per year, the APC covers approximately two-thirds of the costs for municipalities related to the total expense of separate collection

- The cost of littering is expected to increase due to the trend of rising waste production (partly covered by APC)
- it is also expected that the current system will continue to expand, with estimates of around CZK 2 billion .

To give an idea of the financing, we present the income and costs of municipalities within the scope of waste management.

Municipal revenues from waste management (source: CETA, 2022)

- the most significant source is waste collection fees from residents; the average annual amount in 2020 was CZK 540 per person (i.e. 0.14% of the annual median wage), in 2022 CZK 650 per person (the average cost for municipalities, however, is around CZK 1300, meaning that the municipality subsidises waste management at the expense of development and other activities);
- negligible revenues from trade in secondary raw materials;
- a contribution from the authorised packaging company EKO-KOM a.s., financed by producers who place packaging on the market.

Costs of municipal waste management (source: CETA, 2022)

Municipalities and cities play a crucial role in the current extended producer responsibility scheme for packaging waste (they operate a network of sorted waste containers within their territory). At the same time, municipalities and towns are the natural point of contact for the financial settlement of waste management for each of us, which is also underfunded. The total cost of waste management per person per year, amounting to about a thousand crowns, is low when compared to other areas such as health, education or social services.

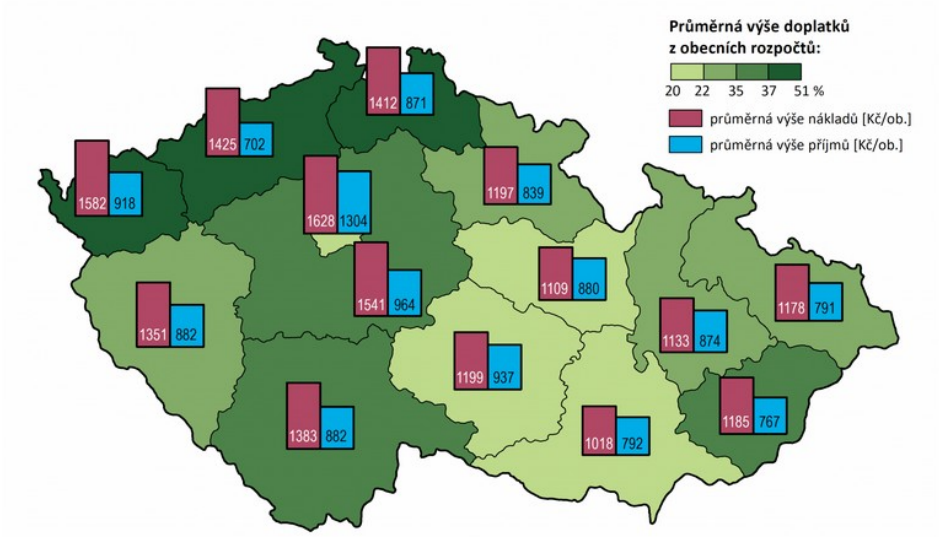
Waste management costs are a moderately significant expenditure item for municipalities. The graph below presents the development of the total costs of municipal waste management in the years 2006–2020, recalculated from unit costs.

Graph 2: Development of total WM costs from 2006 to 2020 (source: CETA, 2022)

Náklady odpadového hospodářství obcí (2006-2020)	Costs of municipal waste management (2006-2020)
Náklady v mil. Kč	Costs in millions of .

From an economic point of view, municipal waste management costs represent more of a political (social) issue rather than a key fiscal issue.

- average annual unit cost for WM in 2020 **CZK 1064 per person per year;**
- average monthly unit cost of WM in 2020 **approximately 89 CZK/person/month;**
- total annual costs of municipalities for WM in 2020 amounting to **approximately CZK 350 million ;**
- the total annual costs of WM represent **approximately 3.2%** of the total annual costs of municipalities.



Průměrná výše doplatků z obecních rozpočtů:	Average amount of surcharges from municipal budgets:
průměrná výše nákladů [Kč/oD.]	average cost [CZK/pers.]
průměrná výše příjmů [KC/ob]	average income [CZK/pers.]

Figure 15: Map of the average amount of costs and revenues in waste management and the average amount of additional payments from municipal budgets by region, data for 2022 (source: EKO-KOM a.s.)

1.7.2.5 Social impacts, impacts on families, impacts on consumers

The option without additional measures does not foresee impacts on social status, families and consumer behaviour. It should be stressed again that the public pays (and therefore knows) only 40-50% of the costs associated with the municipal waste management system. Even in the case of Option 0, investments are foreseen; however, it is up to individual municipalities to increase (or decrease) the local fees for waste collection and disposal.

The current system does not represent a need or provide incentives to change the already established waste management in households (i.e. from the point of view of consumers). However, consumers may be indirectly affected by the consequences of Option 0 and the non-fulfilment of EU targets, which in turn presupposes an effort by the state to take additional measures (deposit-return) and expects a faster response from consumers as well.

Option 0 does not represent a directly identifiable impact on employment.

1.7.2.6 Environmental impacts

Infringement

Option 0 will not lead to meeting the targets under EU legislation; if the PPWR regulation is adopted, Option 0 lacks the adoption of measures under the PPWR regulation (i.e. the introduction of a deposit for plastic beverage bottles and metal beverage packaging, or Option 0 does not represent a meaningful possibility to request or receive an exemption from this obligation).

It is therefore very likely that infringement proceedings will be initiated by the European Commission, where the following can then be expected:

- a decision to adopt additional measures at the national level between 2026 and 2029, with the impacts equating to the costs of the other options (depending on the future option chosen);
- in the absence of additional measures, the European Commission would be successful in an action before the European Court of Justice against the Czech Republic, with the minimum amount of the lump sum fine in the case of the Czech Republic being €1,736,000. The minimum penalty for the Czech Republic is €2500 per day until the Czech Republic remedies the situation. With regard to judicial practice, it can be realistically expected that the amount of the lump sum fine and daily payment will not be near their lower limits, i.e. in the case of the Czech Republic it could be about € 10,000 per day (until the Czech Republic takes corrective action) and a € 2 million lump sum. This means CZK 50 million and higher. Other impacts could include difficulties in accessing EU funds.

Table 9: Overview of targets according to EU legislation and comparison of the current situation

Targets defined for the submission of the draft	Overview of targets according to EU legislation Directive 94/62/EC on packaging (94/62) Directive 2019/904 on single-use plastics (SUPD) Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging) EU Climate and Energy Policy Package Fit for 55 (FF55)			current situation (2022)	Option 0 without additional measures
Promoting the circular economy, saving primary materials, reducing the carbon footprint	**Collection of plastic beverage packaging** (weights placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**	**73-75% (according to the SUPD target for beverage plastic packaging)** 76-79% (PET bottles only)	continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and MMW)
		by 2026 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted**		**likely failure to meet PPWR target -> need to introduce deposit system by 2029**
		by 2029 (SUPD, PPWR)	**90%**		continued risk of failing to meet the SUPD target, PPWR (late implementation of a deposit return system may not lead to the target being met)
	Collection of metal beverage packaging (weight placed on the market or put into circulation in the given calendar year)	by 2026 (PPWR)	**introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**	**20–30%**	**certain failure to meet the PPWR target -> need to implement a deposit system**
		by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**		continued risk of failing to meet the target -> late implementation of a deposit system may not lead to achieving the target
	Proportion of recycled plastics in PET bottles	from 2025 (SUPD)	**25%**	**high level of down-**	high level of down-cycling, i.e. the

	(each plastic beverage bottle with a capacity of up to 3 litres)	from 2030 (SUPD, PPWR)	**30%**	**cycling**	lack of rPET in the Czech Republic to meet the target (the need to import rPET), with regard to the increasing mandatory targets, the significance of the impact over time is also increasing
		from 2040 (PPWR)	**65%**		
	Percentage of recycled metals in metal beverage containers	not defined		not tracked	
	Recycling of plastics (weight of plastic packaging waste)	by 2025 (94/62, PPWR)	**50%**	**46%**	likely to meet the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**55%**		likely failure to meet the target (94/62, PPWR)
	Recycling of aluminium (weight of aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**	**26%**	certain failure to meet the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**60%**		certain failure to meet the target (94/62, PPWR)
	Saving primary materials, reducing carbon footprint (reduction of GHG emissions compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] , compliance with EU Fit for 55)	by 2025 (FF55)	11% waste 16% industrial processes	minus 1% waste (i.e. higher emissions) 3% industrial processes	The packaging sector will not contribute to the achievement of the targets (down-cycling, medium recycling rate)
		by 2030 (FF55)	39% waste 37% industrial processes		
		by 2035 (FF55)	63% waste 70% industrial processes		
		by 2040 (FF55)	73% waste 83% industrial processes		
Prevention of littering of beverage containers, overall waste reduction	**Minimisation of littering, overall reduction of packaging waste**	reducing the growth trend of plastic and aluminium packaging waste minimising littering	without quantification, trend monitoring	increasing trend (linearly by about 18% for plastics, 32% for metals by 2030) increase in littering	no impact on the growth trend of plastic and aluminium packaging waste increase in littering
Ensuring the purity of recycled material from waste beverage packaging	**Maximum repeatability of recycling, minimising down-cycling**	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring	high level of down-cycling	high level of down-cycling (without financial incentive for sorting, contamination in mixed containers)

degree of probability

certain achievement/non-achievement	90–100%
probable achievement/non-achievement	75–90%
potential achievement/non-achievement	60–75%
continuing risk of non-achievement	40–60%
cannot estimate achievement/non-achievement	0–40%

1.7.3 Option 1 – beverage packaging deposit system (separate from the sorting system)

1.7.3.1 Impacts on the national budget and other public budgets

Infringement

Failure to meet sub-targets cannot be fully ruled out, particularly in the case of PPWR provisions for sorting and recycling metal beverage containers; in the case of plastic packaging and plastic beverage bottles, the targets should be met. However, in the case of infringement, agreement on possible additional measures or demonstration of a sufficient trajectory to achieve the targets with a delay can be envisaged. We do not envisage the stage of proceedings before the European Court of Justice and the related financial penalties.

Registration and record-keeping fees

Revenue to the SEF and the state budget for a one-off decision on the Operator's authorisation and increased annual fees associated with record-keeping are estimated at CZK 48 million annually. Revenue is divided equally between the SEF and the state budget.

Ministry of the Environment

Revenue of the Ministry of the Environment for deposits paid and not returned, including VAT, up to approximately 650 million /year; if the sorting rate according to the set targets is achieved within the deposit system, the MoE will not have income. The targets increase gradually from 2026 to 2029 from 72% to 91.5% for plastic beverage bottles and to 90% for metal beverage containers.

Table 10: Breakdown of deposits for unreturned packaging (annual)

Amount of deposit (CZK)	Allocation of deposits for non-returns (annual production 2.6 billion units)	MoE	municipalities (15%)	Operator (85%)	Total
4	85% fulfilled (CZK)	520,000,000	156,000,000	884,000,000	1,560,000,000
	95% fulfilled (CZK)	0	78,000,000	442,000,000	520,000,000
5	85% fulfilled (CZK)	650,000,000	195,000,000	1,105,000,000	1,950,000,000
	95% fulfilled (CZK)	0	97,500,000	552,500,000	650,000,000

For the entire beverage packaging deposit process, an increase of three new job positions is estimated; the current staffing capacity is not sufficient to cover the following activities:

- Monitoring the issue of the deposit of selected products at the level of European legislation.
- Monitoring the preparation of new regulations and other important documents of the European Union for the deposit-return of selected products.
- Preparation of documents for legislative regulations on the deposit of selected products at the level of the Czech Republic.
- Authorisation, methodological, control, and analytical activities in relation to the deposit system operator.

- Drawing up methodological documents on the issue of deposit-return for selected products.
- Drawing up analyses and documents on the issue of deposit-return for selected products.
- Cooperation with stakeholders in the area of deposit-return for selected products.
- Providing a deposit-return agenda in connection with the Waste Management Information System.
- Cooperation on the development of strategic documents of the Ministry of the Environment in the field of deposit return systems.
- Preparation of reporting obligations related to deposit-return (EU, national data processing).
- Support for projects in the field of deposit return systems
- Communicating with the European institutions and participating in the meetings of the European bodies concerning the deposit-return agenda.

According to the Methodology for Determining the Costs of Public Administration Performance in Delegated Powers and to Government Regulation No 304/2014 on the salaries of civil servants and assuming that they will be employees in the 14th pay grade, the total annual costs for the performance of this new agenda are estimated at approximately CZK 1.3 million annually. In the case of three job positions, the costs amount to approximately CZK 3.9 million annually.

The Ministry expects to cover these estimated costs as part of the increase in registration and record-keeping fees (part of which is paid into the state budget). It is appropriate to cover the period between the entry into force of the law and its effective date, when it will be necessary to ensure the given agenda, but the fees will still not be collected, by increasing the budget of the Ministry. These funds will be gradually returned to the Slovak Republic (sic) through increased fees in the following years.

Ministry of Industry and Trade

In the case of the Ministry of Industry and Trade, we estimate the costs associated with consultations during the Operator's authorisation at approximately 40 hours (one working week). This administration represents a burden of approximately CZK 26,000. We expect this will be covered by current working capacities; this is a one-time activity.

The Czech Environmental Inspectorate

We expect a slight increase in the administrative burden, as inspections will mainly take place in locations where the supervisory authority is already engaged in the current collection of returnable containers for glass bottles. Activity should be manageable within current capacities.

Czech Trade Inspection Authority

On the basis of negotiations within the settlement of the interdepartmental comment procedure, the Czech Trade Inspection Authority estimated the anticipated costs associated with the extension of the CTIA's supervisory competence. This is an increase of up to 4 staff members, which represents a cost of 3.2 million annually.

1.7.3.2 Impacts on international competitiveness of the Czech Republic

Option 1 presents positive impacts on the international competitiveness of the Czech Republic. The implementation of ESG standards in the Czech banking sector, which has subscribed to the principles of sustainability financing, has a significant impact on firms' competitiveness. It gradually takes climate and environmental indicators into account as part of its risk monitoring and loan portfolio management. The readiness of companies to implement and report ESG standards and the compliance of activities with the EU Taxonomy for Sustainable Finance therefore has a direct impact on their ability to secure investment financing by the banking sector, which will seek and prioritize investment projects in line with the

decarbonisation trajectory of the Czech Republic and the introduction of other sustainability standards, including in the area of the circular economy. In the context of the circular economy, for companies this will mean, for example, evaluating the way they use resources in their activities, identifying the related risks and opportunities, and then reporting this as part of sustainability reporting.

Bearing in mind that, as part of ESG reporting and related sustainability finance tools, companies have:

- an obligation to publish the targets set by the entity regarding resource use and the circular economy;
- an obligation to publish information on waste, in relation to material impacts, risks and opportunities;
- a description of the materials/resources used, including: products (and packaging), critical raw materials and rare earths, water, and own devices used in the undertaking's activities and upstream value chain;

the preparedness of public infrastructure for the circular economy (i.e. in the case of this proposal in the field of beverage packaging) will have a direct positive impact on the possibilities for companies to take ESG standards into account and thus on the availability of commercial financing and international competitiveness – including the quality of the business environment in the Czech Republic.

1.7.3.3 Impacts on the business environment

Producers and distributors of goods in packaging within the scope of APC

The reduction of plastic beverage bottles and metal beverage containers from the current system will balance the current system, where PET producers contribute unequally to the plastic collection and sorting system. It will cause an increase in the fees of other producers or distributors of goods in APC packaging. If there is an increase for certain types of packaging, this is a necessary step, as their fees are currently unable to cover all the costs associated with their collection and sorting. This will motivate other manufacturers.

Thus, only a short-term impact can be expected – levies will motivate producers to switch to more recyclable packaging. In the long term, this change will lead to an increase in the share of material recovery of collected plastics, similar to what happened in other European countries after the introduction of deposit systems. The introduction of the deposit system has led to more efficient sorting of other types of packaging and to their redesign so that the collected material is more easily recoverable. The overall estimate of EKO-KOM a.s. is an increase in fees for other packaging materials by about 18%. Current prices are available at https://www.ekokom.cz/wp-content/uploads/2024/03/Priloha-c.-3-cenik-od-1.-1.-2024.pdf. On

the basis of the consultations, it emerged that the introduction of a deposit system would not otherwise have an impact on the administration of the APC.

Registration fees represent a cost to producers of CZK 42 million annually.

Producers and distributors of plastic beverage bottles and metal beverage containers within the scope of the Operator

- Operator's fees – will be calculated at the establishment of the Operator; they should cover the costs of paying the handling fee on the part of merchants, which is estimated at CZK 1.7 billion annually.
- Administrative burden associated with a share in the Operator.
- The cost of changing packaging (new EAN, etc.) approximately CZK 64 million .

The draft includes exemptions for packaging placed on the market in such a way that the beverage is bottled and packaged directly at the point of sale to the consumer, i.e. draft beer in a plastic beverage bottle will not be subject to a deposit. Also for very small operators, the proposal includes an exemption for packaging placed on the market or put into circulation in aggregate quantities of less than 100 kg per calendar year – this amounts to around 3,000 1.5-litre plastic beverage bottles, i.e. total sales in PET of around 45 hl; the same quantity of metal beverage containers is approximately 6700 units with a volume of 0.5 litres, which represents sales of approximately 34 hl. If a microbrewery bottles larger quantities of PET bottles or metal beverage containers, it will have to register in the system, register packaging, and report sales, so it will have to fulfil the same obligations as other beverage producers. The vast majority of microbreweries should fit into these conditions. Several dozen of the approximately 500 microbreweries in the Czech Republic will have to register in the system.

Registration fees represent a cost of CZK 6 million annually.

Collection companies

The number of waste collections that provide employment opportunities will increase, but it depends on whether, in the current situation on the labour market, collection companies will be able to cover any increase. (source: EEIP):

- around 10,000 new collection points – mandatory;
- around 1,000 filling stations – mandatory;
- potentially up to 2,100 municipalities with a population of over 300 without a shop—if they wish to participate in the Operator’s system, the Operator is obliged to accept them;
- In the case of including shops up to 50 m^2, there are approximately 5,500 additional locations.

As part of the eeip a.s. study, transport costs in 2020 were estimated at approximately CZK 574 million . At the current inflation rate of approximately 32% between June 2020 and June 2023, transport costs amount to approximately CZK 758 million (for approximately 11 thousand mandatory locations).

According to consultations with municipal representatives, although part of the waste from separate collection will be diverted to the deposit system, no significant reduction in the number of collections in the APC system is expected, because for hygienic reasons it is necessary to continuously empty waste containers (rodents, insects, odours) and at the

same time, the aim is to separate more of the waste that otherwise still ends up in mixed municipal waste.

Sorting lines

In connection with the introduction of the deposit system for beverage packaging, PET material and metal beverage containers will not be diverted, as the Operator will not operate its own sorting lines and the existing ones will be used. However, the deposit system will require the establishment of one additional sorting line (or the transformation of one of the existing ones) with an estimated cost of approximately CZK 300 million (expected to be established on a market basis, not as part of the Operator). The Operator will only be able to operate a counting centre where products will be concentrated.

Municipalities and technical services have long been creating a unified system for the collection, transport, and sorting of municipal waste. This system operates in a market environment, and therefore, competition takes place or municipalities address this area independently to achieve an efficient system. Part of the sorting lines will have to be upgraded and the economics changed to materials other than PET. However, there will be no significant negative financial impacts if existing sorting lines are used.

Producers using recycled PET (rPET), aluminium and metals for their production

The costs associated with establishing compliance with the Act and ensuring separate collection are currently already an obligation to provide customers with the ability to sort waste within their operations, which most establishments do not ensure, and so part of this waste ends up in waste bins in front of shops or inside. In most cases, commercial companies have only mixed municipal waste bins, so all beverage packaging ends up in these bins, thus incurring costs associated with MMW.

Option 1 will ensure full circularity of PET and aluminium. With a view to maintaining the purity of the material, down-cycling will occur at a very low rate, i.e. there will be enough rPET in the Czech Republic to meet the target without the need to import rPET. This assumes that the mandatory target for the share of rPET in PET bottles will be met over time. The same is true of aluminium.

Commercial companies

On the basis of a series of consultations and studies carried out, the aggregate costs on the part of companies are calculated as follows:

- Estimated number of locations with a vending machine installed after considering exceptions and the configuration of the Act: 11,000 (of which 1,000 are filling stations)
- Establishment of the infrastructure of a deposit system separate from sorted collection (investment costs borne by bottled beverage sellers): 5.8 billion .
- Operation of the deposit system (covered by a handling fee to the sellers of packaged beverages – this is not a cost to the sellers but to the producers): 1.7 billion /year

Below are the main inputs used from SOCR, ČAPPO [Czech Association of Petroleum Industry and Trade] and EEIP

Commercial companies that are part of the Czech Confederation of Commerce and Tourism (SOCR)

The deposit-refund system may increase the frequency of visits to shops, as some consumers make purchases directly when returning beverage packaging. Therefore, the regulatory elements must be set in such a way that, for example, they do not harm shops in small municipalities. It is necessary for traders to have all costs compensated in the form of handling fees, and for the Operator to send these fees regularly, so that traders do not finance the deposit-return system.

- **Investment costs (implementation of the deposit system)**
    - purchase of RVMs and readers;
    - costs of reconstruction, reorganisation of storage areas and technical adaptations (design documentation, redevelopment, purchase of additional equipment, camera systems, configuration of IT systems);
    - staff training (implementation);
    - marketing costs (customer communication, posters) in accordance with the marketing strategy of the operator;
    - administrative costs related to the conclusion of the contract with the operator.
- **On the part of traders, the following costs can also be assumed:**
    - the costs and time associated with permit proceedings in the event that it is necessary to apply for a building permit (estimated at 6–12 months), the total estimated time required for the introduction of a deposit by retailers is 18 months;
    - administrative costs related to the conclusion of the contract with the operator.
- **Operating costs**
    - utilities;
    - service of equipment (service package + extraordinary service);
    - personnel costs associated with operating the system (cleaning, overhead, preparation for collection, assistance in case of breakdowns);
    - staff training (turnover);
    - logistics (material transport, use of space in logistics centres, handling);
    - funds for the payment of deposits until settlement with the Operator.

The above activities represent considerable costs, so the Czech Confederation of Commerce and Tourism conducted an anonymous survey among its members from the retail section. It aimed to quantify all relevant cost items and identify potential risks. Furthermore, it should be noted that the storage of beverage packaging entails hygienic and safety risks. The tables below show the expected number of participating stores and their expected investment costs, as well as the estimated annual operating costs. (Source: SOCR)

Table 11: Expected number of participating stores (source: SOCR ČR, 2023)

Category of store by area	up to 50 m²	50-100 m²	100-200 m²	200-400 m²	400-2500 m²	over 2500 m²	Total

Number of stores by category	5,464	4,591	1,792	508	1,351	334	14,040
Estimated number of stores involved - manual collection	4,644	4,178	1,075	0	0	0	9,897
Expected number of participating stores - automatic collection	0	413	717	508	1,351	334	3,323

Table 12: Total estimate of investment and operating costs (source: SOCR ČR, 2023)

Type of collection	Investment costs (CZK)	Annual operating costs (CZK/year)
Manual collection	111,810,071	302,482,334
Automated collection	5,063,900,203	1,060,904,002
Estimation of the total cost of implementing and operating the deposit system	**5,175,710,274**	**1,363,386,336**

Filling stations affiliated with the Czech Association of Petroleum Industry and Trade (ČAPPO)

In some cases, immediate consumption by customers occurs at filling stations, and very often filling stations also serve as a place for customers to dispose of waste from their car (for example: food and beverage packaging, left-over food).

According to consultations with representatives of petrol stations (ČAPPO, SČS – Union of Independent Petroleum Producers of the Czech Republic), the involvement of filling stations in the deposit system for beverage packaging entails especially the following costs, which will be compensated, as for shops, in the form of a handling fee for:

- operation;
- loan or lease in the event of inability to finance from own funds;
- a secure container of sufficient capacity, electrical installation, connection to the filling station security system;
- the necessary permits (fire department, occupational safety inspectorate, hygiene station, etc.);
- filling station fire plan (permanent location of flammable material);

filling station property/areas – property in rest areas owned by the State, represented by the Road and Motorway Directorate, are only on motorways and Class I roads. However, there are some rest areas (depending on when they were built) where the land is owned by different owners (state/natural persons/legal entities). Depending on the time of the contract's conclusion and the aforementioned land tenure, the area of land leased from the RMD and the conditions of the individual contracts vary among individual filling stations. The area of a filling station is an undefined space necessary for the safe operation of the station and the services provided here. At a filling station, flammable and explosive substances are stored and handled in large quantities. Therefore, its size and the possibility or obligation of situating individual buildings and objects are determined mainly by building regulations, fire and transport safety, and logistical needs, which aim to align with the requirements of legislation on transport infrastructure, the operation of filling stations, hygiene regulations, and, last but not least, the requirements of customers and the need to ensure their safety and safety as a whole. If it is not necessary for these reasons, the filling station operator does not lease additional areas, as they are very expensive. Moreover, the RMD is generally not interested in providing additional land for the needs of the filling station, as it has its own obligation to ensure a sufficient number of parking spaces for trucks at rest areas, and currently, they are short of approximately 2000 parking spaces. It is therefore very difficult and in some cases

impossible to find a free safe space where the reverse vending machine can be placed and securely accessed by a vehicle for the removal of the waste/beverage packaging collected there. Since the conditions of companies outside ČAPPO are not known, it is only possible to estimate the number of filling stations situated at least partially on RMD land. Given the reported number of 1000 filling stations, this share would probably be around 14%. At the same time, even with existing leases from the RMD, any situation of additional equipment (even on currently leased land) is subject to the approval of the RMD. (source: ČAPPO)

- Take-back options at filling stations:
    - automated
    - outdoor location;
    - indoor location;
    - manual

Cost estimates are presented in the tables below.

Table 13: Estimated costs of individual take-back options at filling stations (source: ČAPPO)

Options	Initial investment (CZK)	Annual operating cost (CZK/year)	Total costs over the lifetime of the vending machine (10 years)*	Total cost for 10 years - with leasing **	Average annual costs (CZK)
Outdoor location	655,000	317,500	3,830,000	3,825,000	382,750
Indoor location	495,500	282,500	3,320,500	3,375,000	334,775
Manual collection	55,000	519,415	5,249,153		524,915

* the cost of purchasing a vending machine from own funds
** the cost of acquiring the machine through leasing (i.e. leasing instalments spread over 10 years)

Table 14: Estimation of the cost of automated collection with the vending machine located outdoors (source: ČAPPO)

Area	Item	Note	Cost in CZK per (filling station/year)
Structural and technical modifications	Design work		10,000
	Construction work (ground, power supply, shelter...)		50,000
	Handling zone (compliance with OSH standards, HSSE)		10,000
	Transport		5,000
Hardware	Price of the vending machine (PET/cans) - price including scanner/reader for PET/cans	lifespan of 10-15 years. Emptying the machine 2-3 min	500,000
	Required shelter for outdoor location		50,000
	Reader (lifespan XY years)		25,000
	Transport		5,000
Operating costs	Electricity	Consumption 6570 kWh/year	40,000
	Technical maintenance of the machine by the supplier (cost, frequency, time requirements)	technician once a year, 2-3 hours	11,250
	Leasing instalment for the acquisition of a vending machine on lease		65,000
	Insurance		1,250
Osobní náklady	Staff (0.5 FTE)		250,000
Other costs	Rental of premises		15,000
Costs for the first year when purchasing a vending machine (CZK)			**972,500**
Costs for the first year - vending machine lease (CZK)			**537,500**

Table 15: Estimation of the cost of automated collection with an indoor vending machine (source: ČAPPO)

Area	Item	Note NFR	Cost in CZK per (filling station/year)
Structural and technical modifications	Technical documentation - location according to shop format		10,000
	Construction work (electricity supply, handling zone, reorganization of the sales area)		50,000
	Transport		5,000

Hardware	Price of vending machine (PET/cans) Price including scanner for PET/cans	lifespan of 10-15 years. Emptying the machine 6-10 min	405,500
	Scanner		25,000
Operating costs	Electricity	consumption of 3285 kWh per year	20,000
	Technical maintenance of the machine by the supplier (cost, frequency, time requirements)	Technician once a year, 2-3 hours	11,250
	Leasing instalment for the acquisition of a vending machine		55,000
	Insurance		1,250
Osobní náklady	Staff (0.5 FTE)		250,000
Costs for the first year when purchasing a vending machine (CZK)			**778,000**
Costs for the first year - vending machine lease (CZK)			**427,500**

Table 16: Estimated costs of manual collection (source: ČAPPO)

Area	Item	Cost in CZK per (filling station/year)
Structural and technical modifications	Storage area	30,000
Hardware	Scanner	25,000
Operating costs	Increased costs of compliance with hygiene standards	9,415
	Collection and storage material (sacks)	0
	Protective and hygienic equipment	10,000
Osobní náklady	Staff (1 FTE)	500,000
Other costs	Lost profits (extension of customer service time, loss of storage space)	
Total annual costs (CZK/year)		**574,415**

However, the overall costs may be lower in connection with the exemption for catering and hospitality establishments, as it is possible that a large part of the filling stations where refreshments are consumed will take advantage of this exemption and cover any losses associated with the transported bottles from their own resources or increase the prices of beverages.

The Czech Association of Petroleum Industry and Trade, in cooperation with some Member States, also carried out a survey of the current state of PET and metal beverage containers in their baskets.

The analysis of yellow bins was carried out on 16 June and 19–20 June 2023 at the MOL Bělčice highway filling station (on highway D1, 35 km from Prague, outbound); from 19 to 21 June 2023 at the MOL Varvažov motorway filling station at the border (77 km on D8 in the direction into the Czech Republic) and at the MOL Varvažov motorway filling station at the border (85.3 km on D8 in the direction from the Czech Republic to DE). These are filling stations with the highest annual sales of beverages in plastic packaging and metal beverage containers in the MOL filling station chain. The contents of the yellow containers were always completely emptied on the evening before the monitoring day. After the end of the monitored day, the content was always sorted into plastic packaging and metal containers for beverages from soft drinks and beverages up to 15% alcohol by volume, and other waste. The sorted beverage packaging was further sorted into packaging that was placed on the market in the Czech Republic (in the table below labelled as PET CZ and CANS CZ) and those that were placed on the market outside the Czech Republic according to their label (see the table below labelled as PET foreign and CANS foreign). From the quantity of ‘returned’ packaging thus determined during the reference days, the percentage of beverage packaging ‘returned’ in this way was calculated out of the total quantity of beverages in that

packaging sold at the same filling station. At the same time, the percentage of beverage packaging placed on the market outside the Czech Republic and discarded ('returned') at this particular monitored filling station was calculated from the amount of 'returned' packaging thus determined for the monitored days. From the above, it is quite clear that when customers buy beverages at the service station, in most cases they take them with them as they continue their journey.

For example, Orlen Unipetrol conducted an investigation at their filling stations (Benzina and Orlen) regarding the share of returned returnable glass beverage packaging and found that, on average, the share of returned deposit glass packaging sold at this filling station chain had stabilized at 5% throughout the year. For Shell, this share is around 15% on average.

On the other hand, the return rate of private label deposit packaging from beverages in returnable packaging sold at filling stations in Slovakia is now already more than 80%. Yet in Slovakia it is not compulsory for filling stations to be involved in the collection system (the criterion for compulsory entry in Slovakia = a sales area greater than 300 m^2), and the vast majority of collection is carried out via supermarkets.

Table 17: Results of the survey at filling stations (source: MOL ČR s.r.o.)

MOL filling station with the highest annual sales of beverages in plastic and metal cans			
MOL filling station name	**PACKAGE**	yellow bin content (% of total sales)	total content of foreign packaging from yellow bin content (%)
Bělčice D1	PET CZ	13	
	PET foreign	0	40
	CANS CZ	39	
	CANS foreign	0	18
Varvažov – D8 into the Czech Republic	PET CZ	20	
	PET foreign	0	60
	CANS CZ	27	
	CANS foreign	0	45
Varvažov – D8 towards Germany	PET CZ	20	
	PET foreign	0	29
	CANS CZ	31	
	CANS foreign	0	32

EEIP study on the possibility of introducing deposits

As part of the preparation of the amendment to the Packaging Act and the consultation procedure, there have been many discussions about possible exemptions from deposit. The Ministry's estimates for the exemption for small shops range from 11,000 to 16,000 shops. If all stores were take-back points, the estimates would be in the range of around 30,000–35,000 outlets. Below are the calculations for 16,000 and 30,000 stores.

Table 18: Retail balance – calculation for 16,000 and 30,000 stores (source: eeip, a.s.)

Retail balance (in thousands of CZK)	Opt. 0 - 16k stores	Opt. 1 - 30k stores
Revenue - handling fees	**813,798**	**838,274**
Costs	**813,798**	**838,274**

Stores with automated return for refund:	479,742	479,742
acquisition, installation and servicing of vending machines	262,204	262,204
payroll costs	73,467	73,467
space costs	134,813	134,813
additional electricity costs	9,259	9,259
Stores with manual return for refund:	334,055	358,532
space furnishings	2,914	5,921
payroll costs	252,845	252,845
space costs	78,297	99,765
Profit or loss	**-**	**-**

Retail revenue: these are only handling fees, which reflect retail costs, i.e. they change along with costs
Automated return for refund:
No change, i.e. the costs will remain unchanged.
Manual return for refund:
1. **Space furnishings** - with a higher number of return points, it is necessary to acquire equipment for handling the returned packaging in a larger number of shops —> increase in capital costs, and consequently, an increase in capital costs spread over the lifespan as operating costs.
2. **Payroll costs** - no change. Although more people are involved in manual return (more shops), the volume of work remains the same (the number of returned packages does not change, i.e. the same number of packages is handled by more people).
3. **Cost of space** - with an increase in the number of purchasing points, the area that retailers have to reserve for returned packaging will also increase. Hence. costs grow (but due to the reduction of storage capacity in individual stores, the increase in these costs is reduced).

Table 19: Operator's balance at 16,000 and 30,000 stores (source: eeip, a.s.)

Operator balance without PoM fees (in thousands of CZK)	Opt. 0 - 16k stores	Opt. 1 - 30k stores
Revenue	**2,926,428**	**2,959,586**
Revenue from unrefunded deposits	759,640	759,640
Industry fee revenue (PoM)	1,102,642	1,135,799
Revenue from payments for recycling	1,064,146	1,064,146
Costs	**2,926,428**	**2,959,586**
Handling fees	813,798	838,274
compensation – RVM return	479,742	479,742
compensation – manual return	334,055	358,532
Material for logistics	184,958	184,958
material - RVM return	167,147	167,147
material - manual return	17,812	17,812
Transport costs	574,192	582,873
transport to intermediate warehouses	256,956	265,637
transport to centres	317,236	317,236
collection and sorting infrastructure	211,127	211,127
write-off of capital costs	18,947	18,947
operating costs	192,180	192,180
central infrastructure	78,207	78,207
write-off of capital costs	36,175	36,175
operating costs	42,032	42,032

material recycling costs	1,064,146	1,064,146
Profit or loss	**-**	**-**

Revenue of the operator:
- revenue does not change, more precisely only the amount of funds that must be collected through the put-on-market fee is adjusted to such an extent that the increased costs of the system are precisely covered.

Costs of the operator:
1. **Handling fees** - will increase to precisely cover the increased costs of retail, i.e., the cost of premises and return facilities. Therefore, the amount of handling fees increases only for establishments with manual return, not for automated return.
2. **Material for logistics** - it is derived solely from the number of returned packages, hence it remains unchanged
3. **Transport costs** - transport costs from stores to intermediate warehouses increase, but not significantly. This is due to the fact that trucks intended for collection from the smallest categories of shops may handle a larger number of shops for each journey, but simultaneously the distance between them is reduced for a larger number of shops. As a result, the truck travels a very similar distance to the original model with 16,000 pick-up points for each collection, merely making more stops en route. And this is the primary cause of the increase in transport costs, as the largest part of this increase is due to the greater amount of time spent loading material.
4. **Collection and sorting infrastructure** - the costs are derived from the number of packages returned, so they remain the same
5. **Material recycling costs -** derived from the number of returned packages, hence they remain the same

Employers

The new Waste Act, in Title I, 'GENERAL OBLIGATIONS', § 13(1), imposes general waste management obligations on everyone. In § 13(1)(c), it imposes an obligation to separate waste, i.e., to sort it. Many employers do not reflect this provision in their internal operations.

The introduction of a deposit system benefits employers by reducing the presence of plastic beverage bottles and metal beverage containers in establishments where employees consume beverages, thereby decreasing waste management and associated waste disposal costs (plastic, metal—in this case, mostly mixed, as not every economic operator sorts metal waste).

In places where free access to a tap with drinking water cannot be provided (for example, road construction), employers fulfil their obligation by providing beverages purchased in plastic bottles. This is simple fulfilment of a statutory obligation. In the case of a deposit system, each employer must calculate whether it is worthwhile to manage the return of plastic beverage bottles or whether to incur a loss of at least CZK 4 per bottle. The estimated maximum annual costs if returnable packaging is retained by employees are provided below.

Table 20: Estimated maximum cost of leaving plastic beverage bottles to employees

Section CZ-NACE	Number of employees (2020)**	Estimated number of bottles 1.5l/person/year *	Estimated consumption of PET bottles (units/year)
Agriculture, forestry and fisheries	92,800	382	35,449,600
Mining and quarrying	22,500	504	11,340,000
Construction	209,300	382	79,952,600
Transport and storage	262,200	252	66,074,400
Estimated total consumption of PET bottles of water or protective beverage (units)			**192,816,600**
Estimate of total costs in the case of deposit of CZK 4/bottle kept by the employee			**771,266,400**

* annually, there are approximately 130 days with temperatures above 20 °C, 235 days with temperatures below 20 °C, 252 working days, assuming that these activities take place on all 130 warm days
** source 2022 Statistical Yearbook

Section CZ-NACE	Number of employees (2020)**	Estimated number of bottles 1.5l/person/year *	Estimated consumption of PET bottles (units/year)
Agriculture, forestry and fisheries	92,800	382	35,449,600
Mining and quarrying	22,500	504	11,340,000
Construction	209,300	382	79,952,600
Transport and storage	262,200	252	66,074,400
Estimated total consumption of PET bottles of water or protective beverage (units)			**192,816,600**
Estimate of total costs in the case of deposit of CZK 5/bottle kept by the employee			**964,083,000**

* annually, there are approximately 130 days with temperatures above 20 °C, 235 days with temperatures below 20 °C, 252 working days, assuming that these activities take place on all 130 warm days
** source 2022 Statistical Yearbook

This is the maximum estimate; the real impact will be noticeably lower because the following input values may differ:

- The number of employees in the sectors concerned working without access to a tap with drinking water is likely to be significantly lower.
- consultations indicate that the volume is determined by legislation; however, in practice, for instance, there is usually a materials storage area at construction sites, from which employees take water as needed, which may result in lower consumption of returnable packaging;
- the number of working days with a temperature above 20 °C may vary.

Sports associations, sports clubs, cultural institutions, etc.

In the event of the introduction of a deposit system, the organizers of social events may incur a loss if visitors return the refundable containers outside the organized event. However, in view of the overall trend of reducing single-use plastics at social events, this impact is considered negligible.

1.7.3.4 Territorial impacts, including impacts on territorial self-governing units

Trend impacts of Option 1 on municipalities

- Municipalities cover 40-50% of the costs of collecting municipal waste from sources other than fees collected from residents; we do not anticipate changes caused directly by regulation.
- Option 1 should reduce the share of refundable packaging in MMW to up to 10% of plastic beverage bottles placed on the market and gradually reduce metal beverage containers in mixed municipal waste to up to 10%, i.e. reducing municipal costs for MMW (in particular the landfill fee), which is otherwise uncompensated by the APC;
- The APC covers approximately two-thirds of the costs to municipalities for the total expenses associated with separate collection. We do not anticipate changes; the loss of PET revenues within the scope of the APC will be offset by eco-modulation and borne by producers (an 18% increase in the fees for APC producers).
- reducing littering from plastic beverage bottles and, in particular, metal beverage containers to a minimum, reducing the cost of one-off clean-ups due to the reduced volume of waste collected (e.g. under the Clean up Czechia initiative);
- the costs of collection of municipal waste will remain unchanged in view of the assumption of greater sorting of another part of mixed municipal waste by the public and in view of the increase in waste generation;
- we expect an increase in the costs of municipalities associated with the purchase of beverage packaging for municipalities with over 300 inhabitants who voluntarily apply for participation in the system, which will be compensated through a handling fee. There are currently about 2100 municipalities in the Czech Republic and approximately one third of them do not have a shop (i.e. about 700 municipalities). (source: Czech Statistical Office, Institute of Sociology of the Academy of Sciences);
- it is also expected that the current system will continue to expand, with estimates of around CZK 2 billion ;
- Municipalities will receive 15% of the uncollected deposits from the Operator.

Building permit costs

The complexity of building permit proceedings is individual and depends on the scope and quality of the project. If structural modifications are needed in relation to the installation of reverse vending machines, we assume that upon submission of complete documentation, including the opinions of the relevant state administration bodies, it will take one building authority official 4–6 hours (to familiarize themselves with the documents, evaluate them, and draft the decision of the building authority).

- there are 694 building authorities (the total number may change based on the amendment to the Building Act);
- an estimate of the number of stores requiring building modifications for the installation of a reverse vending machine (approximately 2000);
- administrative burden was calculated according to the Methodology for determining the costs of performing delegated state administration (Ministry of the Interior, 2020); For the calculation of hourly costs, a rate of CZK 453 per hour corresponding to pay grade 10, level 8 was used for ORP (with the addition of 33.8% for health and social

insurance contributions, 25% for personal allowances and remuneration, and 48% for overhead).

Table 21: Estimation of the costs of building authorities for the processing of building permits*

Estimation of costs of building authorities	from	to
Time required to process a single opinion (hours)	4	6
Estimated number of entities requesting a building permit (units)	2,000	
Hourly rate according to the Ministry of the Interior Methodology (2020) (CZK/hour)	453	
Estimate of total costs per proceedings (CZK)	1,812	2,718
Estimated total costs of all proceedings (CZK)	**3,624,000**	**5,436,000**

* The above-mentioned costs apply only in the case of submission of complete documentation with the opinions of the relevant state administration bodies. Otherwise, it is necessary to account for higher time demands and consequently higher costs.

Attitudes of municipal representatives towards the introduction of deposit systems in the Czech Republic vary, as each municipality is unique. Opinions are based on knowledge or ignorance of the issue and the specifics of the municipality. More opinions of the representatives of the municipalities of the Czech Republic are available at:

https://www.komunalniekologie.cz/info/starosto-jste-nebo-nejste-pro-povinne-zalohovani-a-jaky-dopad-by-mohlo-mit-jeho-zavedeni-prave-na-vasi-obec

1.7.3.5 Social impacts, impacts on families, impacts on consumers

The impact of introducing the deposit system on employment is debatable, as lately the Czech Republic has had a very low unemployment rate. The percentage of the unemployed in the economically active population, i.e. the sum of employed and unemployed, was 2.8% in April 2023. There has been a long-term shortage of employees in transport, logistics and manufacturing (source: ManpowerGroup). As part of the deposit system, we can expect an increase in demand for the following positions (for some positions, the salary range according to the NSP [National System of Professions] is provided):

- office worker (CZK 28–52k /month);
- salesperson (20–32k /month);
- cashier (24–37k /month);
- low voltage electrical technician (31–54k /month);
- warehouse worker (23–34k /month);
- truck driver (28–51k /month);
- logistics specialist (33–64k /month);
- bricklayer (24–34k);
- recycling plant operator (25–39k);
- etc.

The social and family impacts, in terms of the effects of Option 1 on household expenditure, are expected to be negligible. Part of the costs will be passed on to the price of products by producers placing returnable packaging on the market. If costs are passed on to final prices in the case of beverage packaging, we expect some consumers to switch to tap water and thus make significant savings. The average price for water and sewage for 1000 litres in the Czech Republic is around 130 CZK (i.e., 1 litre of tap water costs about 0.1 CZK compared to bottled drinking water, which costs about 5 CZK per litre). From the perspective of manufacturers marketing packaging covered by the APC system, it can also be assumed that the higher costs of enhanced eco-modulation will be passed on to the price of products, but the exact impact is not quantifiable. Impacts on the increase of local fees for waste collection and transport by municipalities are not expected (municipalities will continue to be compensated by the APC and through 15% of unreturned deposits by the Operator.)

Option 1 may pose certain health risks for the socially vulnerable and children who see returnable beverage packaging as a source of money for which they can then buy something (alcohol, sweets, cigarettes, etc.). Unfortunately, these people do not comply with the basic rules and products for hygiene (e.g. gloves, soap) and their presence in the vicinity of shops (return points) is expected to increase.

From the perspective of consumers, in the case of Option 1, it will be necessary to change consumer behaviour regarding the handling of plastic beverage packaging and metal beverage containers

- if consumers are not able to return beverage packaging on an ongoing basis (e.g. on their way to work), they will be forced to store it. In the case of plastic beverage bottles, these are flammable materials, so problems can arise in houses where consumers put empty bottles, for example, in the garage (breaches of fire regulations, problems with neighbours, insects and small animals), in the boiler room in family homes, or elsewhere. In 2021, the Czech Republic had 4,787,762 inhabitants living in apartment buildings and 5,183,735 inhabitants living in family homes (source: CSO);

Figure 16: Storage of returnable packaging

- in the case of a deposit system, consumers will incur costs in the obligation to take plastic waste (bags, yoghurt cups, non-returnable plastic bottles) to a yellow container, the average distance to which in the Czech Republic is approximately 90 m (source: EKO-KOM) and then will have to take the returnable bottles to the return point. In the case of shops the average distance is 3.37 km (source: STEM and DATLAB), where the following applies:

    a) in the Czech Republic, bottle return machines are mostly inside shops; it is necessary to take bags with bottles and walk from the parking lot to the machine;

    b) if there is a large number of people, it is necessary to wait in line;

    c) In the event of technical problems (the machine is jammed or full), it is necessary to wait for an employee to put the machine back into service.

However, the above impacts are not so significant as to appreciably affect household expenditures and social inequality.

1.7.3.6 Environmental impacts

Infringement

Failure to meet sub-targets cannot be fully ruled out, particularly in the case of PPWR provisions for sorting and recycling metal beverage containers; in the case of plastic packaging and plastic beverage bottles, the targets should be met. However, in the case of infringement, agreement on possible additional measures or demonstration of a sufficient trajectory to achieve the targets with a delay can be envisaged. We do not envisage the stage of proceedings before the European Court of Justice and the related financial penalties.

Table 22: Overview of objectives according to EU legislation and comparison with Option 1

Targets defined for the submission of the draft	Overview of targets according to EU legislation Directive 94/62/EC on packaging (94/62) Directive 2019/904 on single-use plastics (SUPD) Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging) EU Climate and Energy Policy Package Fit for 55 (FF55)			current situation (2022)	Option 1 beverage packaging deposit system (separate from the sorting system)
Promoting the circular economy, saving primary materials, reducing the carbon footprint	**Collection of plastic beverage packaging** (weights placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**	**73-75% (according to the SUPD target for beverage plastic packaging)** 76-79% (PET bottles only)	likely achievement of the SUPD target
		by 2026 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted**		likely to meet the PPWR target
		by 2029 (SUPD, PPWR)	**90%**		likely to meet the SUPD target, PPWR
	Collection of metal beverage packaging (weight placed on the market or put into circulation in the given calendar year)	by 2026 (PPWR)	**introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**	**20–30%**	likely failure to meet the PPWR target (due to the need to substantially increase the collection rate from 20–30% to 80% in 1 year after the introduction of the deposit)
		by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**		potential achievement of the PPWR target
	Proportion of recycled plastics in PET bottles (each plastic beverage bottle with a capacity of up to 3 litres)	from 2025 (SUPD)	**25%**	**high level of down-cycling**	very low level of down-cycling, i.e. sufficient rPET in the Czech Republic to meet the target (without the need to import rPET), assuming the mandatory target is met on time
		from 2030 (SUPD, PPWR)	**30%**		
		from 2040 (PPWR)	**65%**		
	Percentage of recycled metals in metal beverage containers	not defined		not tracked	

	Recycling of plastics (weight of plastic packaging waste)	by 2025 (94/62, PPWR)	**50%**	**46%**	certain achievement of the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**55%**		certain achievement of the target (94/62, PPWR)
	Recycling of aluminium (weight of aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**	**26%**	continued risk of failure to meet the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**60%**		potential achievement of the target (94/62, PPWR)
	Saving primary materials, reducing carbon footprint (reduction of GHG emissions compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] , compliance with EU Fit for 55)	by 2025 (FF55)	11% waste 16% industrial processes	minus 1% waste (i.e. higher emissions) 3% industrial processes	the packaging sector will contribute to achieving the objectives (avoiding down-cycling, high recycling rates)
		by 2030 (FF55)	39% waste 37% industrial processes		
		by 2035 (FF55)	63% waste 70% industrial processes		
		by 2040 (FF55)	73% waste 83% industrial processes		
Prevention of littering of beverage containers, overall waste reduction	**Minimisation of littering, overall reduction of packaging waste**	reducing the growth trend of plastic and aluminium packaging waste minimising littering	without quantification, trend monitoring	increasing trend (linearly by about 18% for plastics, 32% for metals by 2030) increase in littering	slight decrease in the growth trend of plastic and aluminium packaging waste certain reduction in littering (minimisation for returnable packaging)
Ensuring the purity of recycled material from waste beverage packaging	**Maximum repeatability of recycling, minimising down-cycling**	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring	high level of down-cycling	very low level of down-cycling (deposit as a financial incentive for sorting, separation of plastic beverage bottles and metal beverage containers from other plastic waste)

degree of probability	
certain achievement/non-achievement	90–100%
probable achievement/non-achievement	75–90%
potential achievement/non-achievement	60–75%
continuing risk of non-achievement	40–60%

cannot estimate achievement/non-achievement	0–40%

1.7.4 Option 2 – expansion of the sorting network

1.7.4.1 Impacts on the national budget and other public budgets

Infringement

Option 2 will not lead to meeting the targets under EU legislation (see environmental impacts); if the PPWR regulation is adopted, Option 2 lacks the adoption of a deposit for plastic beverage bottles and metal beverage containers.

It is therefore very likely that infringement proceedings will be initiated by the European Commission, where the following can then be expected:

- a decision to adopt a deposit system at the national level between 2026 and 2029, with the impacts equating to the costs of the other options (depending on the future option chosen);
- in the absence of additional measures, the European Commission would be successful in an action before the European Court of Justice against the Czech Republic, with the minimum amount of the lump sum fine in the case of the Czech Republic being €1,736,000. The minimum penalty for the Czech Republic is €2500 per day until the Czech Republic remedies the situation. With regard to judicial practice, it can be realistically expected that the amount of the lump sum fine and daily payment will not be near their lower limits, i.e. in the case of the Czech Republic it could be about € 10,000 per day (until the Czech Republic takes corrective action) and a € 2 million lump sum. This means CZK 50 million and higher. Other impacts could include difficulties in accessing EU funds.

Registration and record-keeping fees

Revenue to the SEF and the state budget for a one-off decision on the Operator's authorisation and increased annual fees associated with record-keeping are estimated at CZK 42 million annually. Revenue is divided equally between the SEF and the state budget.

1.7.4.2 Impacts on international competitiveness

Option 2 presents mixed impacts on the international competitiveness of the Czech Republic. The implementation of ESG standards in the Czech banking sector, which has subscribed to the principles of sustainability financing, has a significant impact on firms' competitiveness. It gradually takes climate and environmental indicators into account as part of its risk monitoring and loan portfolio management. The readiness of companies to implement and report ESG standards and the compliance of activities with the EU Taxonomy for Sustainable Finance therefore has a direct impact on their ability to secure investment financing by the banking sector, which will seek and prioritize investment projects in line with the decarbonisation trajectory of the Czech Republic and the introduction of other sustainability standards, including in the area of the circular economy. In the context of the circular economy, for companies this will mean, for example, evaluating the way they use resources in their activities, identifying the related risks and opportunities, and then reporting this as part of sustainability reporting.
Bearing in mind that, as part of ESG reporting and related sustainability finance tools, companies have:

- an obligation to publish the targets set by the entity regarding resource use and the circular economy;
- an obligation to publish information on waste, in relation to material impacts, risks and opportunities;
- a description of the materials/resources used, including: products (and packaging), critical raw materials and rare earths, water, and own devices used in the undertaking's activities and upstream value chain;

the preparedness of public infrastructure for the circular economy (i.e. in the case of this proposal in the field of beverage packaging) will have a direct impact on the possibilities for companies to take ESG standards into account and thus on the availability of commercial financing and international competitiveness – including the quality of the business environment in the Czech Republic.
In the case of Option 2, a mixed impact on competitiveness can be assumed, not as negative as in the case of Option 0 and not as desirable (positive) as in the case of Option 1 and Option 2+.

1.7.4.3 Impacts on the business environment

Producers and distributors of goods in packaging within the scope of APC

The option foresees a change in APC fees (boosting eco-modulation) to level the conditions for producers of plastic beverage bottles and other plastic packaging. The increase for certain types of packaging is a necessary step, due to the fact that producers' fees, excluding plastic beverage bottles, are currently unable to cover all the costs associated with their collection and sorting. This will motivate other manufacturers. Thus, only a short-term impact can be expected – levies will motivate producers to switch to more recyclable packaging. In the long term, this change will lead to a general increase in the share of material recovery of collected plastics. The increase in APC fees for other packaging materials due to eco-modulation would be about 18%.

APC fees will also increase in connection with the reimbursement of part of the costs to municipalities for network intensification. Option 2 foresees significant investments on the part of municipalities in the intensification of the network, which will also generate collection costs – part of these costs is paid to the municipalities of APCs through fees from producers and revenues from the sale of secondary materials. At present, the APC pays municipalities about 2/3 of the costs incurred by municipalities for separate collection, analogously in the case of Option 2 the APC would increase producer fees by about CZK 1.8 to 2.4 billion per year. There are 21,301 entities covered by the APC, hence the average annual cost would be 86-105k per producer. In reality, however, the amount would vary according to the type of products, the performance of the whole system and the use of secondary raw materials on the market.

However, if municipal costs were not covered by the APC system, it can be assumed that they would be passed on to residents through local collection fees or property taxes and recreational fees.

Registration fees represent a cost to producers of CZK 42 million annually.

Collection companies

Total cost of collection with new approximately 1.7 million D2D, the increase in collections for the intensification of the public network by about 150,000 locations while ensuring the necessary number of collections is estimated at CZK 2 to 2.4 billion per year (depending on the number of separate collections of plastic beverage bottles and metal beverage containers and multi-commodity collection).

Sorting lines

In the case of higher intensification, there is no model in which Czech Republic can avoid modification of the 125 sorting lines in the Czech Republic. Regardless of whether most of the waste will be collected separately or in the form of multi-commodity, investments in sorting lines will be a necessity. The investment in one sorting line ranges from 150 to 250 million. This will require additional investments in waste management on the order of billions of CZK and, as has hitherto been the case, will have to be at least partially covered by public budgets – though the costs can be borne by both municipalities and market operators. Investment in sorting capacities in the model is not projected. A total of 125 sorting lines (or 122 non-automated lines) are expected to cost around CZK 18-30 billion . In the case of separate containers for plastic beverage bottles and metal beverage containers, we assume investments needed for sorting in the lower half of the cost range, i.e. CZK 18-24 billion, and CZK 25-30 billion for multi-commodity collection .

Producers using recycled PET (rPET), aluminium and metals for their production

Option 2 poses an ongoing down-cycling risk, i.e. a potential shortage of rPET in the Czech Republic to meet the target for the mandatory share of rPET in PET bottles, uncertainty over time with regard to increasing the target and more stringent conditions for separate collection of food-grade materials. The same is true of aluminium.

Commercial companies

The costs associated with establishing compliance with the Act and ensuring separate collection are currently already an obligation to provide customers with the ability to sort waste within their operations, which most establishments do not ensure, and so part of this waste ends up in waste bins in front of shops or inside. In most cases, commercial companies have only mixed municipal waste bins, so all beverage packaging ends up in these bins, thus incurring costs associated with MMW.

In the case of Option 2, commercial companies will bear part of the costs associated with network intensification, in summary calculation:

- Investments in containers:
    - CZK 180 million in the case of separate collection of plastic beverage bottles and metal beverage containers;
    - CZK 135 million in the case of multi-commodity collection.
- Operating costs for collection:
    - CZK 61 million per year in the case of separate collection of plastic beverage bottles and metal beverage containers;

- CZK 40 million per year in the case of multi-commodity collection.

The final costs will depend on the choice of network intensification (separately or multi-commodity).

Employers

Under § 2(1)(b) of Act No 309/2006 on ensuring additional conditions for health and safety at work, an employer must ensure that working conditions comply with safety and hygiene requirements. One of these requirements in this Act is that the workplace be supplied with water:

- 1.5 L/person at an outdoor workplace at temperatures up to 20 °C;
- 3 L/person in an outdoor workplace at temperatures above 20 °C;
- 3 L/person at a workplace where the activity is carried out using mining methods.

Furthermore, § 224(1) of Act No 262/2006, the Labour Code, states that the employer is obliged to create working conditions for employees that allow the safe performance of work, which is logically linked to water supply and drinking regime.

Drinking water is defined by § 3 of Act No. 258/2000 on the protection of public health. Simply put, it is intended for drinking, cooking, and preparing food and beverages. In simple terms, this means that the employer fulfils its obligation to provide employees with drinking water by ensuring there is free access to a tap with drinking water at the workplace.

However, water in plastic beverage bottles is the only option in some sectors (e.g. construction). Plastic beverage bottles and metal containers for beverages represent part of the waste produced by employees, the disposal of which is paid for by the employer or, to a large extent, becomes part of the separate collection paid for by municipalities in some sectors, and entrepreneurs are thus free-riders on the municipal system. At the same time, there is no obligation for employers to ensure separate collection within internal operations.

The new Waste Act, in Title I, 'GENERAL OBLIGATIONS', § 13(1), imposes general waste management obligations on everyone. In § 13(1)(c), it imposes an obligation to separate waste, i.e., to sort it. Many employers do not reflect this provision in their internal operations.

Sports associations, sports clubs, cultural institutions, etc.

Expanding the collection network can alleviate cleaning costs at social events. However, in view of the overall trend of reducing single-use plastics at social events, this impact is considered negligible.

1.7.4.4 Territorial impacts, including impacts on territorial self-governing units

In the case of Option 2, municipalities will bear the regulatory costs of intensification of the collection network:

Table 23: Overview of municipal costs by type of collection

	Separate collection of plastic beverage bottles and metal beverage containers (in millions of CZK)	Multi-commodity collection (in millions of CZK)
Capital cost of D2D intensification	806	0.5
Investment in containers in public areas, railway stations, etc.	1,729	1,729

Total capital cost	**2,535**	**1,730**
D2D collection intensification	628	539
Container collection intensification in public areas, railway stations, etc.	1,692	1,456
Sorting on sorting lines	248	248
Maintenance of the collection network - 5% of the price of containers	139	95
Maintenance of the public network - 5% of the price of bins	85	85
Existing collection costs for plastic beverage bottles and metal beverage containers	450	450
Total of operating costs (annual)	**3,241**	**2,871**

Trend impacts under Option 2:

- Option 2, in view of the high intensification costs for municipalities (total capital costs between CZK 2.9 and 3.2 billion), may cause municipalities to pass on part of the costs to residents through local collection and collection fees, or property taxes and recreational fees.
- At present, municipalities are recovering about 2/3 of the costs of separate collection from the APC; if this were to involve the remaining third, the operating costs of municipalities after network intensification would be between CZK 1 and 1.3 billion annually. However, the public pays (and therefore knows about) only 40-50% of the costs associated with the municipal waste management system, and it is up to individual municipalities to increase (or reduce) local fees for waste collection and collection.
- Reducing the share of plastic beverage bottles placed on the market ending in mixed municipal waste and the share of metal beverage containers, i.e. reducing the costs for municipalities for MMW (in particular the landfill fee), which is otherwise without compensation from the APC.
- It is assumed that littering costs will be reduced (partially paid for by APC parties).

1.7.4.5 Social impacts, impacts on families, impacts on consumers

Option 2, taking into account the high intensification costs of municipalities, may cause municipalities to pass on part of the costs to residents through local collection and collection fees, or property taxes and recreational fees. At present, municipalities are recovering about 2/3 of the costs of separate collection from the APC; if this were to involve the remaining third, the new costs of municipalities for network intensification would be between CZK 1 and 1.3 billion annually. However, the public pays (and therefore knows about) only 40-50% of the costs associated with the municipal waste management system, and it is up to individual municipalities to increase (or reduce) local fees for waste collection and collection.

The effects of network intensification on employment are questionable, as the Czech Republic has recently had a very low unemployment rate. The percentage of the unemployed in the economically active population, i.e. the sum of employed and unemployed, was 2.8% in April 2023. There has been a long-term shortage of employees in transport, logistics and manufacturing (source: ManpowerGroup). As part of the intensification of the network and

sorting capacities, we can expect an increase in demand for the following positions (for some positions, the salary range according to the NSP is given):

- office worker (CZK 28–52k /month);
- salesperson (20–32k /month);
- cashier (24–37k /month);
- low voltage electrical technician (31–54k /month);
- warehouse worker (23–34k /month);
- truck driver (28–51k /month);
- logistics specialist (33–64k /month);
- bricklayer (24–34k);
- recycling plant operator (25–39k);
- etc.

In terms of consumer behaviour, Option 2 does not represent a change from the present (Option 0).

However, the above impacts are not so significant as to appreciably affect household expenditures and social inequality.

1.7.4.6 Environmental impacts

Infringement

Option 2 will not lead to meeting the targets under EU legislation (see environmental impacts); if the PPWR regulation is adopted, Option 2 lacks the adoption of a deposit for plastic beverage bottles and metal beverage containers.

It is therefore very likely that infringement proceedings will be initiated by the European Commission, where the following can then be expected:

- a decision to adopt a deposit system at the national level between 2026 and 2029, with the impacts equating to the costs of the other options (depending on the future option chosen).
- in the absence of additional measures, the European Commission would be successful in an action before the European Court of Justice against the Czech Republic, with the minimum amount of the lump sum fine in the case of the Czech Republic being €1,736,000. The minimum penalty for the Czech Republic is €2500 per day until the Czech Republic remedies the situation. With regard to judicial practice, it can be realistically expected that the amount of the lump sum fine and daily payment will not be near their lower limits, i.e. in the case of the Czech Republic it could be about € 10,000 per day (until the Czech Republic takes corrective action) and a € 2 million lump sum. This means CZK 50 million and higher. Other impacts could include difficulties in accessing EU funds.

Table 24: Overview of targets under EU legislation and comparison with Option 2

Targets defined for the submission of the draft	Overview of targets according to EU legislation Directive 94/62/EC on packaging (94/62) Directive 2019/904 on single-use plastics (SUPD) Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging) EU Climate and Energy Policy Package Fit for 55 (FF55)			current situation (2022)	Option 2 expansion of the sorting network
Promoting the circular economy, saving primary materials, reducing the carbon footprint	**Collection of plastic beverage packaging** (weights placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**	**73-75% (according to the SUPD target for beverage plastic packaging)** 76-79% (PET bottles only)	potential achievement of the SUPD target
		by 2026 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted**		possible achievement of the PPWR target -> request for an exemption from the introduction of a deposit system
		by 2029 (SUPD, PPWR)	**90%**		continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and from MMW)
	Collection of metal beverage packaging (weight placed on the market or put into circulation in the given calendar year)	by 2026 (PPWR)	**introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**	**20–30%**	**certain failure to meet the PPWR target -> need to implement a deposit system**
		by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**		continued risk of failing to meet the target -> late implementation of a deposit system may not lead to achieving the target
	Proportion of recycled plastics in PET bottles (each plastic beverage bottle with a capacity of up to 3 litres)	from 2025 (SUPD)	**25%**	**high level of down-cycling**	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning
		from 2030 (SUPD, PPWR)	**30%**		
		from 2040 (PPWR)	**65%**		

					the increase of the target and the tightening of conditions for the
	Percentage of recycled metals in metal beverage containers	not defined		not tracked	
	Recycling of plastics (weight of plastic packaging waste)	by 2025 (94/62, PPWR)	**50%**	**46%**	certain achievement of the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**55%**		certain achievement of the target (94/62, PPWR)
	Recycling of aluminium (weight of aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**	**26%**	likely failure to meet the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**60%**		continued risk of failure to meet the target (94/62, PPWR)
	Saving primary materials, reducing carbon footprint (reduction of GHG emissions compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] , compliance with EU Fit for 55)	by 2025 (FF55)	11% waste 16% industrial processes	minus 1% waste (i.e. higher emissions) 3% industrial processes	the packaging sector will contribute to the objectives (high recycling rates but with down-cycling assumption)
		by 2030 (FF55)	39% waste 37% industrial processes		
		by 2035 (FF55)	63% waste 70% industrial processes		
		by 2040 (FF55)	73% waste 83% industrial processes		
Prevention of littering of beverage containers, overall waste reduction	**Minimisation of littering, overall reduction of packaging waste**	reducing the growth trend of plastic and aluminium packaging waste minimising littering	without quantification, trend monitoring	increasing trend (linearly by about 18% for plastics, 32% for metals by 2030) increase in littering	the trend of growth in plastic and aluminium packaging waste is unlikely to decrease possible reduction of littering
Ensuring the purity of recycled material from waste beverage packaging	**Maximum repeatability of recycling, minimising down-cycling**	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring	high level of down-cycling	continued risk of down-cycling (without financial incentives for sorting, improved availability of the collection network and D2D, contamination in mixed containers)

degree of probability	
certain achievement/non-achievement	90–100%

probable achievement/non-achievement	75–90%
potential achievement/non-achievement	60–75%
continuing risk of non-achievement	40–60%
cannot estimate achievement/non-achievement	0–40%

1.7.5 Option 2+ – expansion of sorting network and introduction of DDRS

1.7.5.1 Impacts on the national budget and other public budgets

Infringement

Failure to meet sub-targets cannot be fully ruled out, particularly in the case of PPWR provisions for sorting and recycling metal beverage containers; in the case of plastic packaging and plastic beverage bottles, the targets should be met. However, in the case of infringement, agreement on possible additional measures or demonstration of a sufficient trajectory to achieve the targets with a delay can be envisaged. We do not envisage the stage of proceedings before the European Court of Justice and the related financial penalties.

Registration and record-keeping fees

Revenue to the SEF and the state budget for a one-off decision on the Operator's authorisation and increased annual fees associated with record-keeping are estimated at CZK 48 million annually. Revenue is divided equally between the SEF and the state budget.

Ministry of the Environment

Revenue of the Ministry of the Environment for selected and unreturned deposits including VAT approximately CZK 650 million /year, if the efficiency of the backup system is achieved above 95% sorting rate, the MoE will not have income.

Table 25: Breakdown of deposits on unreturned packaging (annual)

Amount of deposit (CZK)	Allocation of deposits for non-returns (annual production 2.6 billion units)	MoE	municipalities (15%)	Operator (85%)	Total
4	85% fulfilled (CZK)	520,000,000	156,000,000	884,000,000	1,560,000,000
	95% fulfilled (CZK)	0	78,000,000	442,000,000	520,000,000
5	85% fulfilled (CZK)	650,000,000	195,000,000	1,105,000,000	1,950,000,000
	95% fulfilled (CZK)	0	97,500,000	552,500,000	650,000,000

For the entire beverage packaging deposit process, an increase of three new job positions is estimated; the current staffing capacity is not sufficient to cover the following activities:

- Monitoring the issue of the deposit of selected products at the level of European legislation.
- Monitoring the preparation of new regulations and other important documents of the European Union for the deposit-return of selected products.
- Preparation of documents for legislative regulations on the deposit of selected products at the level of the Czech Republic.
- Authorisation, methodological, control, and analytical activities in relation to the deposit system operator.

- Drawing up methodological documents on the issue of deposit-return for selected products.
- Drawing up analyses and documents on the issue of deposit-return for selected products.
- Cooperation with stakeholders in the area of deposit-return for selected products.
- Providing a deposit-return agenda in connection with the Waste Management Information System.
- Cooperation on the development of strategic documents of the Ministry of the Environment in the field of deposit return systems.
- Preparation of reporting obligations related to deposit-return (EU, national data processing).
- Support for projects in the field of deposit return systems
- Communicating with the European institutions and participating in the meetings of the European bodies concerning the deposit-return agenda.

According to the Methodology for Determining the Costs of Public Administration Performance in Delegated Powers and to Government Regulation No 304/2014 on the salaries of civil servants and assuming that they will be employees in the 14th pay grade, the total annual costs for the performance of this new agenda are estimated at approximately CZK 1.3 million annually. In the case of three job positions, the costs amount to approximately CZK 3.9 million annually.

The Ministry expects to cover these estimated costs as part of the increase in registration and record-keeping fees (part of which is paid into the state budget). It is appropriate to cover the period between the entry into force of the law and its effective date, when it will be necessary to ensure the given agenda, but the fees will still not be collected, by increasing the budget of the Ministry. These funds will be gradually returned to the Slovak Republic (sic) through increased fees in the following years.

Ministry of Industry and Trade

In the case of the Ministry of Industry and Trade, we estimate the costs associated with consultations during the Operator's authorisation at approximately 40 hours (one working week). This administration represents a burden of approximately CZK 26,000. We expect this will be covered by current working capacities; this is a one-time activity.

The Czech Environmental Inspectorate

We expect a slight increase in the administrative burden, as inspections will mainly take place in locations where the supervisory authority is already engaged in the current collection of returnable containers for glass bottles. Activity should be manageable within current capacities.

Czech Trade Inspection Authority

On the basis of negotiations within the settlement of the interdepartmental comment procedure, the Czech Trade Inspection Authority estimated the anticipated costs associated

with the extension of the CTIA's supervisory competence. This is an increase of up to 4 staff members, which represents a cost of 3.2 million annually.

1.7.5.2 Impacts on international competitiveness

Option 2+ represents positive impacts on the international competitiveness of the Czech Republic. The implementation of ESG standards in the Czech banking sector, which has subscribed to the principles of sustainability financing, has a significant impact on firms' competitiveness. It gradually takes climate and environmental indicators into account as part of its risk monitoring and loan portfolio management. The readiness of companies to implement and report ESG standards and the compliance of activities with the EU Taxonomy for Sustainable Finance therefore has a direct impact on their ability to secure investment financing by the banking sector, which will seek and prioritize investment projects in line with the

decarbonisation trajectory of the Czech Republic and the introduction of other sustainability standards, including in the area of the circular economy. In the context of the circular economy, for companies this will mean, for example, evaluating the way they use resources in their activities, identifying the related risks and opportunities, and then reporting this as part of sustainability reporting.

Bearing in mind that, as part of ESG reporting and related sustainability finance tools, companies have:

- an obligation to publish the targets set by the entity regarding resource use and the circular economy;
- an obligation to publish information on waste, in relation to material impacts, risks and opportunities;
- a description of the materials/resources used, including: products (and packaging), critical raw materials and rare earths, water, and own devices used in the undertaking's activities and upstream value chain;

the preparedness of public infrastructure for the circular economy (i.e. in the case of this proposal in the field of beverage packaging) will have a direct positive impact on the possibilities for companies to take ESG standards into account and thus on the availability of commercial financing and international competitiveness – including the quality of the business environment in the Czech Republic.

1.7.5.3 Impacts on the business environment

Producers and distributors of goods in packaging within the scope of APC

The option foresees a change in APC fees (boosting eco-modulation) to level the conditions for producers of plastic beverage bottles and other plastic packaging. The increase for certain types of packaging is a necessary step, due to the fact that producers' fees, excluding PET bottles, are currently unable to cover all the costs associated with their collection and sorting. This will motivate other manufacturers. Thus, only a short-term impact can be expected – levies will motivate producers to switch to more recyclable packaging. In the long term, this change will lead to a general increase in the share of material recovery of collected plastics. The increase in APC fees for other packaging materials due to eco-modulation would be about 18%.

APC fees will also increase in connection with the reimbursement of part of the costs to municipalities for network intensification. Option 2+ foresees significant investments on the

part of municipalities in the intensification of the network, which will also generate collection costs – part of these costs is paid to the municipalities of APCs through fees from producers and revenues from the sale of secondary materials. At present, the APC pays municipalities about 2/3 of the costs incurred by municipalities for separate collection, analogously in the case of Option 2 the APC would increase producer fees by about CZK 1.8 to 2.4 billion per year. There are 21,301 entities covered by the APC, hence the average annual cost would be 86-105k per producer. In reality, however, the amount would vary according to the type of products, the performance of the whole system and the use of secondary raw materials on the market.

However, if municipal costs were not covered by the APC system, it can be assumed that they would be passed on to residents through local collection fees or property taxes and recreational fees.

Registration fees represent a cost to producers of CZK 42 million annually.

Manufacturers and distributors of plastic beverage bottles and metal beverage containers under the DDRS

For Option 2+, they will have to set up a digital deposit return system. However, it is assumed that the following capital costs would be borne directly by the producers (the costs of network intensification will be borne primarily by municipalities and merchants, the producers will bear part of the costs of municipalities via APC fees):

- Capital cost of marking of containers (compensation to municipalities) CZK 164 million .
- Capital cost of production line CZK 177 million .
- Capital cost of IT solution CZK 96 million .
- Annual operating costs: CZK 88 million .

The total investment cost of the producers would thus be approximately CZK 437 million . The operating costs of the DDRS (packaging labelling) and IT system management are estimated at CZK 88 million annually.

Registration fees represent a cost of CZK 6 million annually.

Collection companies

Total cost of collection with new approximately 1.7 million D2D, the increase in collections for the intensification of the public network by about 150,000 locations while ensuring the necessary number of collections is estimated at CZK 2 to 2.4 billion per year (depending on the number of separate collections of plastic beverage bottles and metal beverage containers and multi-commodity collection).

Sorting lines

In the case of higher intensification, there is no model in which Czech Republic can avoid modification of the 125 sorting lines in the Czech Republic. Regardless of whether most of the waste will be collected separately or in the form of multi-commodity, investments in sorting lines will be a necessity. The investment in one sorting line ranges from 150 to 250 million. This will require additional investments in waste management on the order of billions of CZK and, as has hitherto been the case, will have to be at least partially covered by public

budgets – though the costs can be borne by both municipalities and market operators. Investment in sorting capacities in the model is not projected. A total of 125 sorting lines (or 122 non-automated lines) are expected to cost around CZK 18-30 billion . In the case of separate containers for plastic beverage bottles and metal beverage containers, we assume investments needed for sorting in the lower half of the cost range, i.e. CZK 18-24 billion, CZK 25-30 billion for multi-commodity collection .

Producers using recycled PET (rPET), aluminium and metals for their production

Option 2+ poses an ongoing down-cycling risk, i.e. a potential shortage of rPET in the Czech Republic to meet the target for the mandatory share of rPET in PET bottles, uncertainty over time with regard to increasing the target and more stringent conditions for separate collection of food-grade materials. The same is true of aluminium.

Commercial companies

The costs associated with establishing compliance with the Act and ensuring separate collection are currently already an obligation to provide customers with the ability to sort waste within their operations, which most establishments do not ensure, and so part of this waste ends up in waste bins in front of shops or inside. In most cases, commercial companies have only mixed municipal waste bins, so all beverage packaging ends up in these bins, thus incurring costs associated with MMW.

Employers

in the event of forfeiture of the deposit from the employer's perspective in the agriculture, mining, construction, and transport sectors, this may amount to a maximum of CZK 770 million annually, as in the case of Option 1.

The new Waste Act, in Title I, 'GENERAL OBLIGATIONS', § 13(1), imposes general waste management obligations on everyone. In § 13(1)(c), it imposes an obligation to separate waste, i.e., to sort it. Many employers do not reflect this provision in their internal operations.

Sports associations, sports clubs, cultural institutions, etc.

In the event of the introduction of a deposit system, the organizers of social events may incur a loss if visitors return the refundable containers outside the organized event. However, in view of the overall trend of reducing single-use plastics at social events, this impact is considered negligible. Clean-Up and disposal costs and deposit costs (return of beverage packaging) are also expected to be reduced.

1.7.5.4 Territorial impacts, including impacts on territorial self-governing units

In the case of Option 2+, municipalities will bear the regulatory costs of intensification of the collection network:

Table 26: Overview of municipal costs by type of collection

	Separate collection of plastic beverage bottles and metal beverage containers (in millions of CZK)	Multi-commodity collection (in millions of CZK)
Capital cost of D2D intensification	806	0.5
Capital cost of containers in public spaces,	1,729	1,729

railway stations, etc.		
Total capital cost	**2,535**	**1,730**
D2D collection intensification	628	539
Container collection intensification in public areas, railway stations, etc.	1,692	1,456
Sorting on sorting lines	248	248
Maintenance of the collection network - 5% of the price of containers	139	95
Maintenance of the public network - 5% of the price of bins	85	85
Existing collection costs for plastic beverage bottles and metal beverage containers	450	450
Total of operating costs (annual)	**3,241**	**2,871**

Trend impacts under Option 2+:

- Option 2+ in view of the high intensification costs of municipalities (total capital costs of CZK 2.9 to 3.2 billion) may cause municipalities to pass on part of the costs to residents through local collection and collection fees, or property taxes and recreational fees.
- At present, municipalities are recovering about 2/3 of the costs of separate collection from the APC; if this were to involve the remaining third, the operating costs of municipalities after network intensification would be between CZK 1 and 1.3 billion annually. However, the public pays (and therefore knows about) only 40-50% of the costs associated with the municipal waste management system, and it is up to individual municipalities to increase (or reduce) local fees for waste collection and collection.
- Option 2+ should reduce the share of refundable packaging in MMW to up to 10% of plastic beverage bottles placed on the market and gradually reduce metal beverage containers in mixed municipal waste to up to 10%, i.e. reducing municipal costs for MMW (in particular the landfill fee), which is otherwise uncompensated by the APC.
- Reducing littering from plastic beverage bottles and in particular metal beverage containers to a minimum, reducing the cost of one-off cleaning to reduce the volume of waste collected (e.g. under the Clean up Czechia action).
- municipalities will receive income from 15% of unreturned deposits from DDRS.

1.7.5.5 Social impacts, impacts on families, impacts on consumers

Option 2+, taking into account the high intensification costs of municipalities, may cause municipalities to pass on part of the costs to residents through local collection and collection fees, or property taxes and recreational fees. At present, municipalities are recovering about 2/3 of the costs of separate collection from the APC; if this were to involve the remaining third, the new costs of municipalities for network intensification would be between CZK 1 and 1.3 billion annually. However, the public pays (and therefore knows about) only 40-50% of the costs associated with the municipal waste management system, and it is up to individual municipalities to increase (or reduce) local fees for waste collection and collection.

If costs are passed on to final prices in the case of beverage packaging, we expect some consumers to switch to tap drinking water and thus make significant savings. The average

price for water and sewage for 1000 litres in the Czech Republic is around 130 CZK (i.e., 1 litre of tap water costs about 0.1 CZK compared to bottled drinking water, which costs about 5 CZK per litre). From the perspective of manufacturers marketing packaging covered by the APC system, it can also be assumed that the higher costs of enhanced eco-modulation will be passed on to the price of products, but the exact impact is not quantifiable. Impacts on the increase of local fees for waste collection and transport by municipalities are not expected (municipalities will continue to be compensated by the APC and through 15% of unreturned deposits by the Operator.)

The effects of network intensification on employment are questionable, as the Czech Republic has recently had a very low unemployment rate. The percentage of the unemployed in the economically active population, i.e. the sum of employed and unemployed, was 2.8% in April 2023. There has been a long-term shortage of employees in transport, logistics and manufacturing (source: ManpowerGroup). As part of the intensification of the network and sorting capacities, we can expect an increase in demand for the following positions (for some positions, the salary range according to the NSP is given):

- office worker (CZK 28–52k /month);
- salesperson (20–32k /month);
- cashier (24–37k /month);
- low voltage electrical technician (31–54k /month);
- warehouse worker (23–34k /month);
- truck driver (28–51k /month);
- logistics specialist (33–64k /month);
- bricklayer (24–34k);
- recycling plant operator (25–39k);
- etc.

Option 2+ may pose certain health risks for socially vulnerable people and children, who see the deposited beverage packaging as a source of finance for which they can then buy something (alcohol, sweets, cigarettes, etc.), but unfortunately these people do not comply with basic hygiene rules and means (e.g. gloves, soap) and are expected to increase their presence in the vicinity of stores (return locations).

From the consumer's point of view, in the case of Option 2+, it will be necessary to change the consumer behaviour of plastic beverage bottles and metal beverage containers

- if consumers are not able to return beverage packaging on an ongoing basis (e.g. on their way to work), they will be forced to store it. In the case of plastic beverage bottles, these are flammable materials, so problems can arise in houses where consumers put empty bottles, for example, in the garage (breaches of fire regulations, problems with neighbours, insects and small animals), in the boiler room in family homes, or elsewhere. In 2021, the Czech Republic had 4,787,762 inhabitants living in apartment buildings and 5,183,735 inhabitants living in family homes (source: CSO);

Figure 17: Storage of returnable packaging

- in the case of a deposit system, consumers will incur costs in the obligation to take plastic waste (bags, yoghurt cups, non-returnable plastic bottles) to a yellow container, the average distance to which in the Czech Republic is approximately 90 m (source: EKO-KOM) and then will have to take the returnable bottles to the return point. In the case of shops the average distance is 3.37 km (source: STEM and DATLAB), where the following applies:

    d) in the Czech Republic, bottle return machines are mostly inside shops; it is necessary to take bags with bottles and walk from the parking lot to the machine;

    e) if there is a large number of people, it is necessary to wait in line;

    f) In the event of technical problems (the machine is jammed or full), it is necessary to wait for an employee to put the machine back into service.

However, the above impacts are not so significant as to appreciably affect household expenditures and social inequality.

1.7.5.6 Environmental impacts

Infringement

Failure to meet sub-targets cannot be fully ruled out, particularly in the case of PPWR provisions for sorting and recycling metal beverage containers; in the case of plastic packaging and plastic beverage bottles, the targets should be met. However, in the case of infringement, agreement on possible additional measures or demonstration of a sufficient trajectory to achieve the targets with a delay can be envisaged. We do not envisage the stage of proceedings before the European Court of Justice and the related financial penalties.

Table 27: Overview of targets under EU legislation and comparison with sub-Option 2+

Targets defined for the submission of the draft	Overview of targets according to EU legislation Directive 94/62/EC on packaging (94/62) Directive 2019/904 on single-use plastics (SUPD) Packaging Waste Regulation (PPWR) from 2022 (replacing Directive 94/62/EC on packaging) EU Climate and Energy Policy Package Fit for 55 (FF55)			current situation (2022)	sub-Option 2+ extension of the sorting network + introduction of DDRS
Promoting the circular economy, saving primary materials, reducing the carbon footprint	**Collection of plastic beverage packaging** (weights placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**	**73-75% (according to the SUPD target for beverage plastic packaging)** 76-79% (PET bottles only)	likely achievement of the SUPD target
		by 2026 (PPWR)	**introduce deposit of PET and metal beverage packaging, exemption if more than 80% is sorted**		likely to meet the PPWR target
		by 2029 (SUPD, PPWR)	**90%**		continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and MMW)
	Collection of metal beverage packaging (weight placed on the market or put into circulation in the given calendar year)	by 2026 (PPWR)	**introduce a deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**	**20–30%**	likely failure to meet the PPWR target (due to the need to substantially increase the collection rate from 20–30% to 80% in 1 year after the introduction of DDRS)
		by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**		possible achievement of the PPWR target (enhancing the collection rate thanks to DDRS)
	Proportion of recycled plastics in PET bottles (each plastic beverage bottle with a capacity of up to 3 litres)	from 2025 (SUPD)	**25%**	**high level of down-cycling**	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning the increase of the target and the tightening of
		from 2030 (SUPD, PPWR)	**30%**		
		from 2040 (PPWR)	**65%**		

					conditions for the separate collection of food-grade
	Percentage of recycled metals in metal beverage containers	not defined		not tracked	
	Recycling of plastics (weight of plastic packaging waste)	by 2025 (94/62, PPWR)	**50%**	**46%**	certain achievement of the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**55%**		certain achievement of the target (94/62, PPWR)
	Recycling of aluminium (weight of aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**	**26%**	continued risk of failure to meet the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**60%**		potential achievement of the target (94/62, PPWR)
	Saving primary materials, reducing carbon footprint (reduction of GHG emissions compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] , compliance with EU Fit for 55)	by 2025 (FF55)	11% waste 16% industrial processes	minus 1% waste (i.e. higher emissions) 3% industrial processes	the packaging sector will contribute to the objectives (high recycling rates but with down-cycling assumption)
		by 2030 (FF55)	39% waste 37% industrial processes		
		by 2035 (FF55)	63% waste 70% industrial processes		
		by 2040 (FF55)	73% waste 83% industrial processes		
Prevention of littering of beverage containers, overall waste reduction	**Minimisation of littering, overall reduction of packaging waste**	reducing the growth trend of plastic and aluminium packaging waste minimising littering	without quantification, trend monitoring	increasing trend (linearly by about 18% for plastics, 32% for metals by 2030) increase in littering	slight decrease in the growth trend of plastic and aluminium packaging waste certain reduction in littering (minimisation for returnable packaging)
Ensuring the purity of recycled material from waste beverage packaging	**Maximum repeatability of recycling, minimising down-cycling**	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring	high level of down-cycling	continuing risk of down-cycling (deposit as a financial incentive for sorting, improving the availability of the collection network and D2D, contamination in mixed containers)

degree of probability	
certain achievement/non-achievement	90–100%

probable achievement/non-achievement	75–90%
potential achievement/non-achievement	60–75%
continuing risk of non-achievement	40–60%
cannot estimate achievement/non-achievement	0–40%

1.7.6 Assessment of costs and benefits of the options

Table28: Comparison of costs and benefits according to the General Principles of Regulatory Impact Assessment

		Option 0 – without additional measures	**Option 1 – beverage packaging deposit system (separate from the sorting system)**	**Option 2 – expansion of the sorting network**	**Option 2+ – expansion of sorting network and introduction of DDRS**
Impacts on the national budget and other public budgets	national budget	Infringement of CZK 50 million and higher	income from registration fees CZK 24 million /year	Infringement of CZK 50 million and higher income from registration fees CZK 21 million .	income from registration fees CZK 24 million /year
	MoE	-	CZK 3.9 million per year (3 positions) possible income in the event of failure to meet the objectives by the Operator about CZK 650 million /year	-	CZK 3.9 million per year (3 positions) possible income in the event of failure to meet the objectives by the Operator about CZK 650 million /year
	CEI	-	slight increase in inspections	-	slight increase in inspections
	SEF CR	income from registration fees CZK 17 million /year	income from registration fees CZK 24 million /year	income from registration fees 21 million /year	income from registration fees CZK 24 million /year
	MIT	-	one-time consultation associated with the Operator's authorisation	-	one-time consultation associated with the Operator's authorisation
	CTIA	-	CZK 3.2 million per year (4 positions)	-	CZK 3.2 million per year (4 positions)
Impacts on international competitiveness of the Czech Republic	Business and banking sector	Negative impacts on ESG rating of businesses in the Czech Republic and availability of commercial financing.	Positive impacts on ESG rating of businesses in the Czech Republic and availability of commercial financing.	Mixed impacts on ESG rating of businesses the Czech Republic and availability of commercial financing.	Positive impacts on ESG rating of businesses in the Czech Republic and availability of commercial financing.
Impacts on the business environment	Producers and distributors of packaged goods	APC fees, possible increase related to the reimbursement of littering costs and reimbursement of already planned network intensification to municipalities	up to 18% increase in APC fees for packaging other than PET and metal beverage containers	increase in APC fees for packaging other than PET by more than 18% APC fees in addition to eco-modulation will also increase in connection with the payment of a part of the costs to municipalities for network	increase in APC fees for packaging other than PET by more than 18% APC fees in addition to eco-modulation will also increase in connection with the payment of a part of the costs to municipalities for network

					intensification
			fees to the Operator, payment of approximately CZK 1.7 billion per year in handling fees to sellers costs for changing and labelling packaging about CZK 64 million .	intensification	DDRS capital costs CZK 437 million DDRS operating costs CZK 88 million /year costs of changing and labelling packaging about 64 million .
		registration fees CZK 17 million annually	registration fees CZK 48 million annually	registration fees CZK 42 million annually	registration fees CZK 48 million annually
	collection companies	current collection costs related to plastic beverage bottles and metal beverage containers CZK 450 million annually	increase in collections for about 11 thousand locations (less for reverse collection), cumulatively induced transport costs of about CZK 760 million annually + current collection costs of CZK 450 million annually	increase of collections for approx. 1.7 million D2D, increase of collections for intensification of the public network by about 150,000 locations = total collection costs of CZK 2 to 2.4 billion annually + current collection costs of CZK 450 million annually	increase of collections for approx. 1.7 million D2D, increase of collections for intensification of the public network by about 150,000 locations = total collection costs of CZK 2 to 2.4 billion annually + current collection costs of CZK 450 million annually
	sorting lines (various entities)	125 sorting lines, including 3 automated upgrades and changes to the economy of existing sorting lines	125 sorting lines, of which 3 automated + one sorting line for returnable packaging approx. CZK 300 million modernization and change of economy of existing sorting lines	modernisation of existing and new lines CZK 18-24 billion separate containers for plastic and metal bottles/CZK 25-30 billion multi-commodity collection	modernisation of existing and new lines CZK 18-24 billion separate containers for plastic and metal bottles/CZK 25-30 billion multi-commodity collection
	Producers using recycled PET (rPET), aluminium and metals for their production	high level of down-cycling, i.e. the lack of rPET in the Czech Republic to meet the target (the need to import rPET), with regard to the increasing mandatory targets, the significance of the impact over time is also increasing	very low level of down-cycling, i.e. sufficient rPET in the Czech Republic to meet the target (without the need to import rPET), assuming the mandatory target is met on time	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning the increase of the target and the tightening of conditions for the separate collection of food-grade materials	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning the increase of the target and the tightening of conditions for the separate collection of food-grade materials
	commercial companies	costs associated with statutory compliance and ensuring separate collection	5.8 billion establishment of infrastructure for a deposit system separate from sorted collection for 11,000 locations operating costs CZK 1,7 billion	capital costs of network intensification CZK 135-180 million operating costs of network intensification CZK 40-61 million annually	capital costs of network intensification CZK 135-180 million operating costs of network intensification CZK 40-61 million annually

			/year paid through a handling fee (to be borne by the producers) costs associated with statutory compliance and ensuring separate collection	costs associated with statutory compliance and ensuring separate collection	costs associated with statutory compliance and ensuring separate collection
	employers	costs associated with statutory compliance and ensuring separate collection	in the event of forfeiture of the deposit from the employer's perspective in the agriculture, mining, construction, and transport sectors, this may amount to a maximum of CZK 770 million annually costs associated with statutory compliance and ensuring separate collection	costs associated with statutory compliance and ensuring separate collection	in the event of forfeiture of the deposit from the employer's perspective in the agriculture, mining, construction, and transport sectors, this may amount to a maximum of CZK 770 million annually costs associated with statutory compliance and ensuring separate collection
	sports and cultural institutions	clean-up, disposal, phasing out of disposable packaging	clean-up and disposal costs, costs associated with deposits (return of beverage containers).	clean-up, disposal, phasing out of disposable packaging	clean-up and disposal costs, costs associated with deposits (return of beverage containers).
Territorial impacts, including impacts on territorial self-governing units	economy of municipal waste management	municipalities cover 40-50% of the cost of collecting municipal waste from sources other than the fees collected from residents the current cost of collecting plastic beverage bottles and metal beverage containers is CZK 450 million per year, the APC pays about 2/3 of the costs of municipalities for separate collection	municipalities pay 40-50% of the costs for the collection of municipal waste from sources other than fees collected from residents the APC pays about 2/3 of the municipal costs for separate collection, the loss of revenue from plastic beverage bottles in the APC system will be remedied by increasing the fees to producers municipalities will receive income from 15% of unreturned deposits from the Operator	municipalities cover 40-50% of the cost of collecting municipal waste from sources other than the fees collected from residents operating costs of collecting plastic beverage bottles and metal beverage containers after intensification are CZK 1 to 1.3 billion annually, provided that 2/3 is paid by the APC	municipalities cover 40-50% of the cost of collecting municipal waste from sources other than the fees collected from residents operating costs of collecting plastic beverage bottles and metal beverage containers after intensification are CZK 1 to 1.3 billion annually, provided that 2/3 is paid by the APC municipalities will receive income from 15% of unreturned deposits from DDRS
	percentage of plastic beverage bottles and metal beverage containers in MMW	20% of plastic beverage bottles end up in mixed municipal waste and 66% of metal beverage	at most 10% of plastic beverage bottles end up in mixed municipal waste, gradual	reduction of the share of plastic beverage bottles and metal beverage containers in mixed	at most 10% of plastic beverage bottles end up in mixed municipal waste, gradual

		containers end up in mixed municipal waste, i.e. they burden municipalities with costs (especially for landfilling), which is without compensation from the APC	reduction of metal beverage containers in mixed municipal waste down to 10%, i.e. reduction of the cost of landfilling mixed municipal waste, which is without compensation from the APC	municipal waste, i.e. reduction of costs (especially for landfilling), which is without compensation from the APC	reduction of metal beverage containers in mixed municipal waste down to 10%, i.e. reduction of the cost of landfilling mixed municipal waste, which is without compensation from the APC
	Projected investments	investments in the expansion of the existing system are expected to amount to approximately CZK 2 billion .	investments in the expansion of the existing system are expected to amount to approximately CZK 2 billion costs of installing reverse vending machines in municipalities with over 300 inhabitants without a shop (on a voluntary basis)	investments in the expansion of the existing system are expected to be between CZK 2.9 and 3.2 billion .	investments in the expansion of the existing system are expected to be between CZK 2.9 and 3.2 billion .
	littering costs	increasing littering costs (partly covered by the APC)	reduce littering from plastic and metal beverage containers to a minimum	reduction of littering from beverage and metal beverage containers	reduce littering from plastic and metal beverage containers to a minimum
	construction proceedings	-	costs of construction proceedings (installation of reverse vending machines) approximately CZK 3.6 - 5.4 million .	-	-
Social impacts, impacts on families, impacts on consumers	employment	-	demand for office workers, drivers, and other blue-collar professions	demand for office workers, drivers, and other blue-collar professions impacts related to modernisation and automation of sorting lines	demand for office workers, drivers, and other blue-collar professions impacts related to modernisation and automation of sorting lines
	impacts on local fees for waste collection and transport	-	impacts on local fees are not expected (costs are borne primarily by producers and sellers) significant and quantifiable impacts on household incomes are not foreseen (including through cost pass-through to product prices or changes in local fees for municipal waste	impacts on local fees will depend on the share of the costs of network intensification borne by producers under within the APC (refunds to municipalities) or directly by municipalities significant and quantifiable impacts on household incomes are not foreseen (including through cost pass-through to	impacts on local fees will depend on the share of the costs of network intensification borne by producers under within the APC (refunds to municipalities) or directly by municipalities significant and quantifiable impacts on household incomes are not foreseen (including through cost pass-through to

			collection and transport)	product prices or changes in local fees for municipal waste collection and transport)	product prices or changes in local fees for municipal waste collection and transport)
	consumer behaviour	-	necessary change of consumer management of returnable packaging hygienic risks for collectors of discarded packaging (the socially vulnerable, children)	-	necessary change of consumer management of returnable packaging hygienic risks for collectors of discarded packaging (the socially vulnerable, children)
Environmental impacts			see table below		

1.7.7 Summary of the options from the perspective of meeting the defined targets of the draft

Table 29: Comparison of costs and benefits against the defined targets of the draft

Targets defined for the submission of the draft	**Overview of targets according to EU legislation** **Directive 94/62/EC on packaging (94/62)** **Directive 2019/904 on single-use plastics (SUPD)** **2022 proposal for a Regulation on Packaging and Packaging Waste (PPWR)** **(replacing Directive 94/62 EC on packaging) EU Climate and Energy Policy Package Fit for 55 (FF55)**	**current situation (2022)**	**Evaluation of the risks of meeting the targets according to EU legislation and the targets defined for the submission of the draft**			
			Option 0 **without additional measures**	**Option 1** **beverage packaging deposit system (separate from the sorting system)**	**Option 2** **expansion of the sorting network**	**sub-Option 2+** **extension of the sorting network + introduction of DDRS**
	Key measures according to options		without additional measures	1) establishment of a deposit system separating the collection of plastic beverage bottles and metal beverage containers from other collection 2) deposits are refunded to the consumer when returning to dedicated machines	1) expansion of the existing collection network (containers) 2) expansion of the existing D2D system (separated waste bins directly at the house)	1) expansion of the existing collection network (containers) 2) expansion of the D2D system (separated waste bins directly at the house) 3) introduction of refundable deposits through digital wallets (DDRS), return through the existing collection

								system
	Risks of implementing measures				-	cost of a deposit system separate from sorted collection	cost of extending the existing network and D2D	the cost of extending the existing network and D2D DDRS exists in pilot projects; it is not a tested system and is inaccessible to part of the population
Promoting the circular economy, saving primary materials, reducing the carbon footprint	**Collection of plastic beverage packaging** (weights placed on the market or put into circulation in a given calendar year)	by 2025 (SUPD)	**77%**	**73-75% (according to the SUPD target for beverage plastic packaging)** 76-79% (PET bottles only)	continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and MMW)	likely achievement of the SUPD target	potential achievement of the SUPD target	likely achievement of the SUPD target
		by 2026 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 80% is sorted**		**likely failure to meet PPWR target -> need to introduce deposit system by 2029**	likely to meet the PPWR target	possible achievement of the PPWR target -> request for an exemption from the introduction of a deposit system	likely to meet the PPWR target
		by 2029 (SUPD, PPWR)	**90%**		continued risk of failing to meet the SUPD target, PPWR (late implementation of a deposit return system may not lead to the target being met)	likely to meet the SUPD target, PPWR	continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and from MMW)	continued risk of non-compliance with the SUPD target (due to a change in the methodology for counting bottles from joint collection and MMW)
	Collection of metal beverage packaging	by 2026 (PPWR)	**introduce a**	**20–30%**	**certain failure to**	likely failure to meet	**certain failure to**	likely failure to meet

	(weight placed on the market or put into circulation in the given calendar year)		**deposit system for plastic beverage packaging and metal beverage containers, with an exemption if more than 80% is sorted**		**meet the PPWR target -> need to implement a deposit system**	the PPWR target (due to the need to substantially increase the collection rate from 20–30% to 80% in 1 year after the introduction of the deposit)	**meet the PPWR target -> need to implement a deposit system**	the PPWR target (due to the need to substantially increase the collection rate from 20–30% to 80% in 1 year after the introduction of DDRS)
		by 2029 (PPWR)	**introduce a deposit on plastic beverage packaging and metal beverage containers; exemption if more than 90% is sorted**		continued risk of failing to meet the target -> late implementation of a deposit system may not lead to achieving the target	potential achievement of the PPWR target	continued risk of failing to meet the target -> late implementation of a deposit system may not lead to achieving the target	possible achievement of the PPWR target (enhancing the collection rate thanks to DDRS)
	Proportion of recycled plastics in PET bottles (each plastic beverage bottle with a capacity of up to 3 litres)	from 2025 (SUPD)	**25%**	**high level of down-cycling**	high level of down-cycling, i.e. the lack of rPET in the Czech Republic to meet the target (the need to import rPET), with regard to the increasing mandatory targets, the significance of the impact over time is also increasing	very low level of down-cycling, i.e. sufficient rPET in the Czech Republic to meet the target (without the need to import rPET), assuming the mandatory target is met on time	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning the increase of the target and the tightening of conditions for the separate collection of food-grade materials	continued risk of down-cycling, i.e. potential shortage of rPET in the Czech Republic to meet the target, uncertainty over time concerning the increase of the target and the tightening of conditions for the separate collection of food-grade materials
		from 2030 (SUPD, PPWR)	**30%**					
		from 2040 (PPWR)	**65%**					
	Percentage of recycled metals in metal beverage containers	not defined		not tracked				
	Recycling of plastics	by 2025 (94/62, PPWR)	**50%**	**46%**	likely to meet the target (94/62,	certain achievement of the target (94/62,	certain achievement of the target (94/62,	certain achievement of the target (94/62,

	(weight of plastic packaging waste)				PPWR)	PPWR)	PPWR)	PPWR)
		by 2030 (94/62, PPWR)	**55%**		likely failure to meet the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)	certain achievement of the target (94/62, PPWR)
	Recycling of aluminium (weight of aluminium packaging waste)	by 2025 (94/62, PPWR)	**50%**	**26%**	certain failure to meet the target (94/62, PPWR)	continued risk of failure to meet the target (94/62, PPWR)	likely failure to meet the target (94/62, PPWR)	continued risk of failure to meet the target (94/62, PPWR)
		by 2030 (94/62, PPWR)	**60%**		certain failure to meet the target (94/62, PPWR)	potential achievement of the target (94/62, PPWR)	continued risk of failure to meet the target (94/62, PPWR)	potential achievement of the target (94/62, PPWR)
	Saving primary materials, reducing carbon footprint (reduction of GHG emissions compared to 2019 from CRF 2 - industrial processes and CRF 5 - waste according to the proposal of the National Energy and Climate Plan [NECP CR] and Climate Protection Policy [CPC CR] , compliance with EU Fit for 55)	by 2025 (FF55)	11% waste 16% industrial processes	minus 1% waste (i.e. higher emissions) 3% industrial processes	The packaging sector will not contribute to the achievement of the targets (down-cycling, medium recycling rate)	the packaging sector will contribute to achieving the objectives (avoiding down-cycling, high recycling rates)	the packaging sector will contribute to the objectives (high recycling rates but with down-cycling assumption)	the packaging sector will contribute to the objectives (high recycling rates but with down-cycling assumption)
		by 2030 (FF55)	39% waste 37% industrial processes					
		by 2035 (FF55)	63% waste 70% industrial processes					
		by 2040 (FF55)	73% waste 83% industrial processes					
Prevention of littering of beverage containers, overall waste reduction	**Minimisation of littering, overall reduction of packaging waste**	reducing the growth trend of plastic and aluminium packaging waste minimising littering	without quantification, trend monitoring	increasing trend (linearly by about 18% for plastics, 32% for metals by 2030) increase in littering	no impact on the growth trend of plastic and aluminium packaging waste certain reduction in littering increase in littering	slight decrease in the growth trend of plastic and aluminium packaging waste certain reduction in littering (minimisation for returnable packaging)	the trend of growth in plastic and aluminium packaging waste is unlikely to decrease possible reduction of littering	slight decrease in the growth trend of plastic and aluminium packaging waste certain reduction in littering (minimisation for returnable packaging)
Ensuring the purity of recycled material from waste beverage	**Maximum repeatability of recycling, minimising down-cycling**	Technical solution enabling repeated recycling and preventing down-cycling	without quantification, trend monitoring	high level of down-cycling	high level of down-cycling (without financial incentive for sorting, contamination in mixed containers)	very low level of down-cycling (deposit as a financial incentive for sorting, separation of plastic	continued risk of down-cycling (without financial incentives for sorting, improved availability of the	continuing risk of down-cycling (deposit as a financial incentive for sorting, improving the

packaging						and metal beverage containers from other plastic waste)	collection network and D2D, contamination in mixed containers)	availability of the collection network and D2D, contamination in mixed containers)
Cost-effectiveness of the collection system	**Maximum cost-effectiveness of the collection system, taking into account the risks to meeting the targets of EU legislation**	Quantification of investments and operating costs beyond the current situation	investments in a packaging collection system	the current situation is the reference scenario	2 billion planned investments	5.8 billion establishment of a deposit system separate from sorted collection (distributors of bottled beverages)	2.8 billion separate containers for plastic beverage bottles and metal beverage containers/CZK 1.9 billion multi-commodity collection (municipalities)	3.2 billion separate containers for plastic beverage bottles and metal beverage containers/CZK 2.3 billion multi-commodity collection (municipalities) and establishment of DDRS (producers)
			necessary additional investments in sorting technologies			CZK 300 million final sorting line	CZK 18-24 billion separate containers for plastic beverage bottles and metal beverage containers/CZK 25-30 billion multi-commodity collection (various entities)	CZK 18-24 billion separate containers for plastic beverage bottles and metal beverage containers/CZK 25-30 billion multi-commodity collection (various entities)
			operating costs of the packaging collection system		CZK 450 million current costs for the collection of plastic beverage bottles and metal beverage containers	1.7 billion /year of operation of the deposit system (paid through the handling fee to sellers of bottled beverages)	3.2 billion separate containers for plastic beverage bottles and metal beverage containers/CZK 2.9 billion multi-commodity collection (municipalities)	3.4 billion separate containers for plastic beverage bottles and metal beverage containers/CZK 3 billion multi-commodity collection (municipalities) and establishment of DDRS (producers)

			Total over 10 years from the implementation of the measure (investment lifespan of the collection infrastructure)		**6.5 billion .** **risk of infringement for non-compliance with EU targets and adaptation of the PPWR Regulation, additional costs CZK 23-35 billion implementation of measures to achieve the targets (between 2026-2029 and depending on the choice of Option 1 or Option 2+)**	**23 billion .**	**CZK 24-30 billion separate containers, lower final sorting CZK 29-35 billion CZK multi-commodity collection, higher final sorting** **risk of infringement for non-compliance with EU targets and adaptation of the PPWR Regulation** **additional costs CZK 1.3 billion introduction of measures to achieve the targets (between 2026 and 2029, given the intensification investments already made, the introduction of DDRS under Option 2+ would be more likely)**	**CZK 25-31 billion separate containers, lower final sorting, DDRS** **CZK 29-35 billion multi-commodity collection, higher final sorting, DDRS**

degree of probability	
certain achievement/non-achievement	90–100%
probable achievement/non-achievement	75–90%
potential achievement/non-achievement	60–75%
continuing risk of non-achievement	40–60%

cannot estimate achievement/non-achievement	0–40%

1.8 Ranking of the options and selection of the most suitable option

1. **Option 1 – beverage packaging deposit system (separate from the sorting system)**
2. Option 2+ – expansion of sorting network and introduction of DDRS
3. Option 2 – expansion of the sorting network
4. Option 0 – without additional measures

1.8.1 Commentary on Option 1 – beverage packaging deposit system (separate from the sorting system)

As part of the regulatory impact assessment, Option 1 was assessed as the most successful from the point of view of meeting the targets of EU legislation, compliance with the strategies of the Waste Management Plan of the Czech Republic for the period 2015-2024, the Strategic Framework Circular Czechia 2040 and the Climate Protection Policy of the Czech Republic, and also from the point of view of overall cost-efficiency from the point of view of options that may aspire to comply with EU legislation and do not lead to infringement (or reduce the risk of infringement), and will demonstrate, in the event of failure to meet the targets of EU legislation (especially for beverage cans), already adopted adequate measures and thus put the Czech Republic in a better negotiating position regarding the commenced trajectory leading to meeting the targets. The analyses carried out and this RIA are also a fulfilment of the Government Programme Statement in the sense of evaluating the possibilities of introducing a deposit system for other (than existing) beverage packaging.

The Czech Republic currently has a developed packaging waste sorting system that is cost-effective. However, within sorting, the increase in the rate of sorting of packaging waste is approaching its limits (which are determined by the environment, e.g. space for placing containers, and the motivation of citizens). The debate on the introduction of a mandatory deposit system for beverage plastic bottles and metal beverage containers (cans) has reopened in response to the take-back targets under EU law (see below), which are the most important reason for the introduction of the proposed system. During the discussion, the beverage industry actively expressed its willingness to assume extended producer responsibility, i.e. to take care of its packaging waste, especially its return and recycling, and to build a deposit system. The MoE accepted this initiative, as producers are entitled to choose a strategy that allows them to fulfil their extended producer responsibility obligations.

However, the deposit system must reflect the conditions of the Czech Republic, which differ from those under which foreign deposit systems were established. 15 countries in the EU have already implemented a deposit-refund system, and others are planning to implement it (from 2025, Austria, Poland, and Cyprus). Non-EU countries have also introduced a deposit system (e.g. Norway, Iceland, or Scotland) and others are introducing it. Approximately 1.8 billion PET bottles (approximately 47,000 t/year) and 0.8 billion cans (approximately 15,000 t/year) are placed on the market in the Czech Republic every year. In general, about one in five PET bottles ends up in the Czech Republic outside of sorted waste. In the case of cans, about 3 cans out of 4 do not end up in sorted waste (see below for precise numbers).

Option 1 promotes the principles of the circular economy, reduces the amount of waste generated, saves primary materials and reduces the carbon footprint. It thus complies with the waste hierarchy enshrined in Act No 541/2020 on waste. Finally, separating the flow of

plastic beverage bottles and metal beverage containers outside the existing sorting system will not lead to a reduction in the flow of plastic beverage bottles and metal beverage containers; on the contrary, its existing and potentially enhanced capacity must be used to more consistently separate other recyclable parts of waste still present in mixed municipal waste, also in the light of filling the end of landfilling and fully diverting recoverable waste from landfilling. The deposit system is not intended to disrupt the existing waste sorting system, but rather to complement it and be an innovation that ensures high quality recycling, prevents down-cycling and ensures the purity of the recycled material without contamination. The removal of clean, uncontaminated material will ensure that the Czech Republic can continue to successfully meet the EU's plastic packaging take-back targets. Otherwise, there is a serious risk that the Czech Republic will not meet the set targets due to a reassessment of the current way in which packaging waste recovered can be counted according to the set calculations of the targets.

Option 1 aims to ensure that the objectives set out in EU legislation, including those currently under preparation, are met. This includes, in particular, the target laid down in Article 9 of Directive 2019/904 to ensure separate collection for recycling of plastic beverage bottles with a capacity of up to three litres, with a minimum of 90% by weight of such packaging placed on the market or put into circulation in a given calendar year to be recovered from 1 January 2029.

The upcoming EU Packaging and Packaging Waste Regulation includes an obligation to establish a deposit system for plastic beverage bottles and metal beverage containers by 1. 1. 2029. Only if the take-back rate for beverage packaging is above 80% in 2026 and the trajectory to meet the 90% target in 2029 is demonstrable, can a derogation from the introduction of a deposit-refund system be requested from the European Commission.

The deposit system will also ensure better availability of recyclate to meet the target set out in Article 6(5) of Directive 2019/904, according to which beverage bottles of up to three litres made from polyethylene terephthalate as the main component (PET bottles) must contain at least 25% recycled plastic from 2025, and all plastic beverage bottles of up to three litres must contain at least 30% recycled plastic from 2030 onwards.

Option 1 provides for a significant reduction in littering or waste left in a place that is not designated for its disposal. Reducing littering means positive impacts on the environment, the economy of municipalities, and the quality of life of their inhabitants. However, the reduction of littering is not automatic and depends on end-users who have to turn in waste at designated locations

1.8.1.1 How the deposit system will work

Within the deposit system, selected single-use packaging (plastic beverage bottles and metal beverage containers) will be subject to a deposit. Option 1 provides for certain exceptions to single-use packaging (e.g. packaging provided as part of passenger transport on international routes, intended for sale in the transit area of international airports or ports, if the beverage is bottled and packaged directly at the point of sale to the consumer or marketed or put into circulation in aggregate quantities of less than 100 kg per calendar year, etc.). Likewise, packaging containing milk, milk drinks, milk-based drinks or iced coffee with milk will not be subject to a deposit. The criteria are set out in the Act in the new Annex 6 to the Packaging Act.

Option 1 imposes obligations on three categories of entities. These are the persons placing selected single-use packaging on the market (manufacturers), the distributors putting that packaging into circulation (mainly the retailer) and the deposit system operator (hereinafter the ‘operator’).

Persons placing selected single-use packaging on the market shall register such packaging with the deposit system operator and pay the deposit and fee for each package placed on the market to the operator. The person placing the packaging on the market sells the beverage in the packaging to the retailer, who pays them a deposit in addition to the price. The retailer sells the beverage to the consumer, who pays them the price of the beverage and the deposit. The consumer returns the packaging to the retailer, who refunds the deposit. The retailer gives the returned packaging to the operator, who reimburse them the deposits and pays a handling fee as compensation for handling the packaging. The operator ensures the inspection, counting, transport, and treatment of packaging waste. Recycled material is subsequently sold by the operator in the manner specified by the MoE in the authorisation decision (it is assumed that persons placing deposited packaging on the market will have priority access to material due to mandatory recycled content in the packaging).

The deposit system should have about 11,000 mandatory return points. Accepting returns will be mandatory for retailers of selected disposable packaging in stores with over 50 m^2 of sales area (retailers obliged to accept returns should include petrol stations or e-shops that have their own distribution). Option 1 stipulates the obligation to ensure returns are accepted at a distance of at most 500 metres from the point of sale.

Option 1 also does not rule out the involvement of a digital backup system (DDRS), which is currently being tested in some EU countries but not actually applied. The legislation is technologically neutral in this respect. As part of the DDRS, the consumer will be refunded the deposit after scanning the QR code placed on the returnable packaging and on the collection container.

1.8.1.2 Promoting the circular economy, saving primary materials, reducing the carbon footprint

Collection of plastic and metal beverage packaging

Article 9 of Directive 2019/904 of 5 June 2019 on the reduction of the impact of certain plastic products on the environment (hereinafter also ‘Directive 2019/904’) sets targets for the separate collection for recycling of plastic beverage bottles of up to three litres. The obligation to achieve a collection rate of at least 77% by weight of such packaging from 1 January 2025 and at least 90% by weight of such packaging placed on the market or put into circulation in a given calendar year from 1 January 2029 was imposed, as part of the transposition of this Directive [§ 10(5) of the Packaging Act], on persons placing such packaging on the market or putting it into circulation, similarly to the targets for the recovery of packaging waste in the applicable Packaging Act. The collection (under the Packaging Act, ‘take-back’) of plastic bottles is currently below the set threshold in the Czech Republic (within the range of 73-75% for 2022 according to the EY study prepared for the authorised packaging company EKO-KOM, a.s.).

Option 1 is also designed to meet the objectives and provisions of the new EU Packaging and Packaging Waste Regulation (PPWR). Although the PPWR has not yet been adopted, the proposal is in the final stage of the EU legislative process (after trilogues), the provisions

on targets and the precondition for the introduction of a deposit for plastic beverage bottles and metal beverage containers are already certain, the proposal is only undergoing a legislative technical correction (current information as at September 2024). The PPWR goes beyond Directive 2019/904 and includes an obligation to ensure a collection rate of 90% of plastic beverage bottles and metal beverage containers up to three litres by 1. 1. 2029. Only if the take-back rate for beverage packaging is above 80% in 2026 and a strategy to meet the 90% target in 2029 has been drawn up, can a derogation from the introduction of a deposit-refund system be requested from the European Commission. Given the low recycling rate of aluminium packaging in the Czech Republic (for aluminium packaging waste, recovery was only 26% in 2022, according to data from the authorised packaging company), it seems unrealistic that the planned targets will be achieved in the given years. The rate of collection of aluminium waste from packaging has been stagnating for a long time and ranges between 20-30%, which may also be due to the increasing popularity of aluminium cans among consumers, from the perspective of consumption method this type of container is increasingly in demand.

The back-up system aims to be able to take back 90% of the weight of selected beverage packaging (plastic beverage bottles and metal beverage containers) placed on the market within 4 years of its introduction. The current sorting system is reaching its limits and the take-back rate (sorting) is relatively flat. A mere intensification of the collection network would therefore probably fail to meet the objective of ensuring separate collection of plastic beverage bottles from 1 January 2029, which amounts to at least 90% of the weight of the packaging in question, even though the deposit-refund system does not guarantee automatic fulfilment of that objective. This is also stated by the authorised packaging company EKO-KOM, a.s., according to which a high-quality collection network would not be sufficient to achieve the set objectives and there would have to be a direct financial incentive for the consumer, while it would also be necessary to involve a commercial network, e.g. smart collection containers located at shops.

Ratio of recycled plastics in plastic beverage bottles

Article 6(5) of Directive 2019/904, according to which beverage bottles of up to three litres made from polyethylene terephthalate as the main component (PET bottles) are to contain at least 25% recycled plastic from 2025 onwards and all plastic beverage bottles of up to three litres from 2030 onwards are to contain at least 30% recycled plastic, is also relevant for the implementation of the deposit-refund system. This mandatory content recycled plastic is transposed in § 12a of the Packaging Act. According to representatives of the beverage industry, without a deposit system it will not be possible to meet the ambitious targets for recycled plastic content because there will be a shortage of available recycled plastics on the market, or it will be necessary to import them along with the associated costs and missed opportunities for increasing recycling capacities in the Czech Republic.

Recycling of plastic and recycling of aluminium

A large part of the waste from beverage packaging (plastic beverage bottles, metal beverage containers) that is turned in to the packaging waste collection system in the Czech Republic is not recycled. Separation of packaging waste does not automatically imply recycling, and

the current recycling rate of packaging plastic waste in the Czech Republic is 46%, while for packaging waste from aluminium it is only 26%[20].

Circularity has not been achieved for ether of these materials. Recycled material from packaging waste is currently directed mainly to products that can no longer be recycled at the end of their life. For PET bottles, these include baby diapers, carpets and textiles for use in the automotive industry. In the case of aluminium, for example, this involves reagents for the production of steel. This leads to unnecessary down-cycling, which is characterised by lower recycling quality and a lower number of cycles that the recovered waste can undergo.

The deposit system is supposed to guarantee the recycling of packaging waste in food quality, according to the so-called bottle-to-bottle, can-to-can principle, i.e. to sort and recycle packaging materials so that cans become cans again and plastic bottles become plastic bottles again. PET bottles can be recycled about 3 times, packaging made of metal can be recycled theoretically indefinitely, similarly to glass. The reuse of the material for the same purpose minimises its environmental impact.

It is not possible to meet the recycling targets under both the SUPD and, in particular, the PPWR without additional measures.

Saving primary materials, reducing carbon footprint

The deposit system represents a major positive impact on the environment in a broader context. A deposit system features lower environmental impacts compared to a non-deposit system in the following impact categories: climate change/global warming, consumption of fossil raw materials, radiation, metal consumption, particulate matter formation, photo-oxidant formation, soil acidification, soil ecotoxicity and water consumption.[21]

Up to 97% of the weight of a can and up to 80% of the weight of a PET bottle can be reused for the production of a new bottle or can. The essence is the basic property of PET and aluminium, which is that they can be recycled repeatedly. Closing the material cycle fulfils the principles of the system's circularity. It helps save up to 95% energy[22] in the production of a new can thanks to the use of recycled material instead of non-recycled raw material and up to 79%[23] energy in the case of PET bottles. The carbon footprint of a new PET bottle or can be reduced by up to 80% by using recycled material instead of virgin material. The carbon footprint of transport does not play such a role in the life cycle of packaging, the increase in transport emissions is always outweighed by repeated recycling, because, for example, the carbon footprint of the production phase of a new PET bottle from primary raw materials accounts for about 90% of the carbon footprint of the life cycle of the bottle.

Both cans and the PET bottles made from recycled materials have up to a carbon footprint that is up to five times smaller than the same packaging from virgin material.[24] Beverage cans have the highest environmental impact in their life cycle as packaging (together with

[20] Annual summary of the authorised packaging company EKO-KOM, a.s. for 2022

[21] University of Chemistry and Technology: Life Cycle Assessment study on the management of plastic and aluminium beverage packaging (https://www.zalohujme.cz/wp-content/uploads/2019/01/Studie-posuzov%C3%A1n%C3%AD-%C5%BEivotn%C3%ADho-cyklu-LCA-nakl%C3%A1d%C3%A1n%C3%AD-s-plastov%C3%BDmi-a-hlin%C3%ADkov%C3%BDmi-obaly-na-n%C3%A1poje.pdf)

[22] European Aluminium: Recycling Aluminium. A pathway to a sustainable economy (https://www.european-aluminium.eu/media/3421/ea_recycling-brochure-2016.pdf)

[23] Franklin Associates: Life cycle impacts for post-consumer recycled resins: PET, HDPE, and PP (https://plasticsrecycling.org/images/library/2018-APR-LCI-report.pdf)

[24] Imperial College London: Examining Material Evidence. The Carbon Fingerprint

single-use glass beverage packaging).[25] This is because their production creates three times more waste than the aluminium itself.

According to the EC impact assessment on the PPWR Regulation, in a deposit-refund system that reaches 90% of plastic bottle sorting and directs all bottles to down-cycling-free recycling, 1 tonne of collected PET could replace 9.9 tonnes of new PET inputs during repeated collection and recycling cycles. Currently in the EU, around 31% of PET goes into recycling from bottle to bottle, and therefore 1 tonne of collected and recycled PET will over time displace only 3.4 tonnes of new PET inputs into packaging.

The deposit-refund systems put in place across Europe through the consistent application of eco-modulation have further gradually contributed to a high level of standardisation of beverage packaging, in particular plastic bottles – clear PET bottles and easy recyclability are standard in these countries, with clear PET often exceeding 90%.

Figure 18: Refrigerated or sparkling water dispensing machine, Camp Ca Savio, Italy (0.40 €/l)

PET deposit and recycling systems can also lead to the selection of alternative packaging materials (e.g. corn starch bottles, Bag-in-Box®, etc.) or other methods of distributing drinking water (traditional taps in public spaces or vending machines, see the picture). In the Czech Republic, machines belonging to Lokni s.r.o. have begun appearing, for example, at the University of Economics, Main Train Station in Prague, etc. (www.lokni.cz).

Consumer behaviour

Backup systems lead to an increase in take-back and recycling rates, which contributes to the protection of the environment by reducing the amount of waste ending up in landfills or in nature. The implementation of a deposit-refund system also serves as an educational tool that raises awareness of the importance of recycling. People are becoming more aware of the environmental impacts of their consumption behaviour. By returning packaging to the recycling process instead of ending up as waste, deposit-refund systems support the principles of the circular economy, which seeks to maximize resource use and minimize waste.

The sorting of waste into separate containers without economic motivation is gradually reaching its limits, both in terms of the willingness of people to sort waste more and space constraints, i.e. in some places it is no longer possible to place additional containers for sorting. The deposit, i.e. the amount of money charged for the selected single-use packaging, represents an economic (financial) incentive for the final consumers of beverage packaging, which contributes to a change in the mindset and behaviour of the final consumer, whether they throw the deposited plastic bottle or can on the ground or throw it away into unsorted municipal waste, or return it to a deposit system return location and are refunded the deposit. The deposit also motivates other people to collect discarded packaging, which they then return to a deposit system return point (this is already happening with refundable beer bottles) in order to obtain the deposit.

According to a September 2022 Ipsos survey of 1016 respondents, 74% of consumers are in favour of a deposit on plastic beverage bottles and 70% are in favour of a deposit on cans.

[25] LCA Studio: Comparison of life cycle environmental impacts of selected beverage containers

Approximately 12% of people are undecided and need further explanation of the concept.[26] These figures indicate that the deposit system could be well-received by the public and lead to more effective take-back. The MoE carried out a second research survey in December 2023. The study showed that a majority of Czech society is in favour of the introduction of a deposit on plastic beverage bottles and aluminium beverage cans. The findings show that support for the introduction of deposits for both types of packaging increased year-on-year, with a significant increase for aluminium cans. By analogy, the proportion of opponents of deposit-return has decreased. One of the main perceived benefits of deposit-return is that packaging will not be thrown away in nature, encouraging higher returns of returnable packaging and ensuring higher material recycling. The amount of the refundable deposit is a discussed question, with the majority of respondents agreeing with setting a uniform deposit amount for plastic beverage bottles and aluminium cans. The main finding is that a deposit of CZK 4 is acceptable to the Czech population. The study also finds that the majority of respondents prefer to return returnable plastic beverage bottles directly in or near stores, or via reverse vending machines located in every municipality. Support was also shown for the possibility of returning returnable packaging at petrol stations with a sales area of over 50 m².

The introduction of a deposit-refund system can also reduce the amount of total waste generated. Waste prevention is at the top of the waste hierarchy enshrined in § 3(2) of Act No 541/2020 on waste. Depending on the amount of the deposit, the amount of waste produced will be reduced as a deposit is charged on the packaging price, which increases the final amount paid by the consumer. Thus, the consumer is not only motivated by the deposit to return the packaging waste, but also discouraged from purchasing the beverage itself. The higher the deposit charged, the stronger the effect. The deposit will be set by implementing legislation (a decree) and its amount is estimated by the MoE to be at least CZK 4. A higher deposit also leads to a higher return rate of packaging waste.

1.8.1.3 Prevention of littering of beverage containers, overall waste reduction

One of the main purposes of the deposit system is to reduce littering or waste left in a place that is not designated for its disposal. It may be more broadly stated that the waste is intentionally or unintentionally littered, left behind, or, as a result of natural processes, deposited in an urbanised or natural environment, away from designated waste collection points, where the producer does not actively seek to collect it, and which has a negative impact on the environment.[27] In particular, municipalities struggle with littering at the local level and spend considerable funds on it (mainly for collection, but also for awareness-raising and other measures). In the natural environment, a PET bottle decomposes in about 100 years, and a can in about 50 years.[28] Reducing littering means positive impacts on the environment, the economy of municipalities, and the quality of life of their inhabitants.

The results of activities of the Trash Hero non-profit organisation show that PET bottles account for more than a third of littered beverage packaging and cans for more than 40%. Furthermore, according to Trash Hero, there are significantly more non-returnable beverage containers discarded in nature than returnable ones (2000 non-returnable beverage containers vs. 7 beer bottles per half a tonne of waste collected).[29]

[26] Research by the IPSOS agency regarding deposits on PET bottles and cans in the Czech Republic, September 2022

[27] Littering research in the Czech Republic by EKO-KOM, a.s., for the year 2022

[28] https://www.samosebou.cz/2020/08/26/jak-dlouho-se-rozkladaji-odpadky-pohozene-v-prirode/

[29] Trash Hero: 2020 clean-up results

According to a 2019 Eunomia study, the amount of beverage packaging in litter is reduced by up to 95% after deposits are introduced.[30] Slovakia saw a significant drop in discarded beverage packaging. In 2020, cans accounted for 21% of litter picked up, and PET bottles 18%. By autumn 2022, this was only 4% cans and 5% PET bottles. In Germany, before the introduction of an across-the-board deposit system, beverage packaging accounted for about one-fifth of all litter in 1998. Between 1 and 2 billion beverage containers were discarded in nature in 2002. After the introduction of deposits, beverage packaging litter dropped to almost zero. In Lithuania, a 2018 survey showed the deposit-refund system helped reduce littered beverage packaging in nature, 95% of local respondents confirmed a positive experience. The benefits of introducing deposits in relation to littering are also confirmed by the experience of Estonia, which switched to the system in 2005. Estonia analysed the composition of litter along roads in 2003. Beverage packaging accounted for up to 80% of the waste collected, with the majority being PET bottles and cans. After the introduction of deposits, the percentage of beverage packaging in roadside litter has fallen below 10%. The deposit system also aims to reduce consumption (waste production). A higher deposit will reduce demand for returnable beverage packaging. When buying a container with a deposit, consumers are aware of the value of the packaging material they are buying.[31]

1.8.1.4 Ensuring the purity of recycled material from waste beverage packaging

In order to ensure high-quality recycling and prevent down-cycling, the European Union is strongly advocating in its legislation[32] for the purity condition of recycled material to ensure food safety, such that normally sorted plastic waste that may be contaminated should not be counted as sorted, and recyclate from such plastic waste could only be used for the production of food contact packaging if a number of conditions are met. For waste from 'yellow containers', it is not clear how clean the material is.
From the point of view of food-grade purity, the deposit option is preferred, because it will not be necessary to carry out as many purity control analyses, and the deposit system guarantees a reduced risk of chemical and microbiological contamination of waste, as well as a reduced presence of genotoxic substances. The deposit system prevents the contamination of packaging waste with other waste commonly found in sorted waste and ensures the purity of the recycled material (this is why milk bottles are not included in deposit systems, for example).

The deposit system ensures that the Czech Republic can continue to successfully meet the targets for the return of plastic packaging (here in terms of the methodology for inclusion of sorted packaging); otherwise, there is a serious risk that the Czech Republic will not meet the set targets due to a reassessment of the current way in which plastic packaging waste recovered can be counted according to the set calculations of the targets. This was also confirmed by the authorised packaging company ('APS') EKO-KOM, a.s.

[30] Eunomia - Deposit system for the Czech Republic 2019

[31] e.g. https://retailnews.cz/2023/04/12/zalohovani-snizuje-pocet-odhozenych-pet-lahvi-a-plechovek/).

[32] For example, Commission Regulation (EU) 2022/1616 of 15 September 2022 on recycled plastic materials and articles intended to come into contact with food and repealing Regulation (EC) No 282/2008 and Commission Implementing Decision (EU) 2021/1752 of 1 October 2021 laying down rules for the application of Directive (EU) 2019/904 of the European Parliament and of the Council as regards the calculation, verification and reporting of data on the separate collection of waste single-use plastic beverage bottles.

1.8.1.5 Cost-effectiveness of the collection system

The circular economy concerns the entire economy and the behaviour of the population, measures for their implementation must be left to a large extent to market and free action, while systems and regulation must be set up to achieve the intended objectives. Within the decision matrix, only costs directly related to a part of the separately collected packaging system provided by the state and local authorities (including the deposit system), costs incurred by the state in the event of non-fulfilment of the objectives of EU legislation and then, in particular, the regulation of directly predictable and necessary measures on the part of the private sector to comply with regulatory obligations are included. The system itself is broader, nevertheless, though other costs are related to regulation, the current form of regulation does not regulate specific types of measures, although it is otherwise expected to lead to a number of other measures (e.g. changes in the behaviour of the public and companies and the handling of packaging).

Even from the point of view of the calculation of directly induced and foreseeable costs, it is necessary to point out that the calculations made are made in particular for the purpose of comparing the options, and thus methodically tend to the mutual comparability of options. The calculation thus focuses on the overall dimension of the possible fulfilment of the options, is designed as a model and is not intended to be definitive from the point of view of actual costs – these can be affected by inflation, unforeseeable events (geopolitical risks, etc.), the price of financing, etc.

The problem and resolution of the problem is focused on the targets of plastic beverage bottles and metal beverage containers according to the PPWR. The calculation is therefore made, in particular, for the segment of PET and metal beverage containers, not for the entire range of packaging materials, municipal waste management, landfilling, etc. For example, the diversion of newly sorted packaging from mixed municipal waste through the release of up to 25% of the capacity in separate collection through the diversion of plastic beverage bottles to the deposit system will lead to a reduction in the cost of mixed municipal waste and landfilling – but this is one of the cases of indirect impacts that are not necessarily enforced by regulation. It must therefore be emphasised that directly induced costs dominate the balance sheet and indirect induced benefits that would shift the calculation between options are not accounted for – e.g. if we accounted for the costs of the environmental footprint of landfilling and priced the carbon footprint, then the option leading to repeated recycling without down-cycling (i.e. Option 1) would come out as the cheapest in terms of cost-benefit analysis (even when accounting for newly induced transport). Alternatively, the costs of infringement could be counted as the benefits of Option 1 and Option 2+. In conclusion, this calculation is primarily a cost calculation of regulatory-induced direct implementation (costs), the benefits are not quantified and are assessed through a matrix of defined problems and objectives (see Chapter 1.7.7).

However, part of marginal costs (in terms of total costs) or costs that could not be objectively assessed among the options are not accounted for, but are indicated in the impact assessment of the relevant options and in the correlation table in Chapter 1.7.6.

In view of the fact that the options differ considerably in terms of investment and operating costs, a 10-year period of a typical investment cycle of the main technologies (containers, vehicles, reverse vending machines) was chosen, although this is a simplification in the case of sorting lines, on the other hand, the assumption of necessary repairs and maintenance is not taken into account here.

Option 0 is by definition the least costly in terms of immediate costs – more precisely around CZK 2 billion in planned investments in the development of the existing system are included, which is related to the objectives already set in the regulation. Since in the other options only the costs of the new expansion due to plastic beverage bottles and metal beverage containers are worked with in terms of operating costs, in one option the costs of separate collection are recalculated only for plastic beverage bottles and metal beverage containers, i.e. CZK 450 million per year is not the cost of the total collection of sorted municipal waste. However, Option 0 cannot succeed in meeting the objectives under EU legislation, i.e. it will lead to the adoption of additional measures foreseen by the Regulation (i.e. the introduction of deposits) between 2026 and 2029 in the form of Option 1 or Option 2+ (Option 2 is not mentioned here because it is also problematic from the point of view of meeting the objectives). Hence, from a realistic point of view, Option 0 should also include the costs of introducing deposits in some form.

Option 1 is characterised by the highest direct investment costs (CZK 5.8 billion) and one necessary sorting line (about CZK 300 million, which may involve upgrading an existing one). Option 1, however, is the only one that involves the almost complete diversion of plastic beverage bottles and cans from other systems (separate collection, MMW, etc.). The current planned CZK 2 billion in investments (partly network intensification, partly sorting) are not included here, because compared to options 0, 2 and 2+, they are not necessary for further sorting of PET and cans, and Option 1 generates a completely separate and specific capital cost of reverse vending machines and their collection. This does not mean that investments in existing networks or sorting will not or should not be carried out – they are needed to sort other packaging under the APC, it is necessary to take into account the increasing volume of all waste, etc. However, in options 0, 2 and 2+, the aforementioned CZK 2 billion is already included in planned investments because they are inherently part of meeting the objectives of plastic beverage bottles and cans – and it must be added that for Option 0 they are also economically dependent on PET. However, the operating costs of Option 1 are the lowest, which reduces its cost in terms of a 10-year period.

Finally, it should be added that who bears the costs is also an aspect – Option 1 best reflects the general principle of environmental protection – the polluter pays. This is because the costs are borne by producers and commercial companies, who then pass them on to the market in the costs of their products and services. Nevertheless, there is a direct link between who sees and has to deal with the cost of who causes the pollution (and it is irrelevant whether there will be a view of consumers – the demand for products – as polluters, or a view of supply – of the production, marketing and sale of products – as polluters). In other options, the costs of direct implementation and arrangements are left in the hands of the public sector, especially municipalities, the current issue of political decision-making and also the problem of public funding through revenues from taxes and fees, which do not yet reflect the causality of waste management costs, even after a number of efforts by the petitioner to change this through regulation.

Options 2 and 2+ have lower capital costs but higher operating costs. In these options, in order to meet the targets for plastic beverage bottles and cans, the complete modernisation of the existing approximately 120 manual sorting lines is expected, which is why an interval of CZK 18 to 35 billion is being used here for investment in sorting. Collection intensification can also take place through the introduction of separate collection (in the sense of a newly expanded network), which in turn results in the necessary final sorting rate – therefore, in the

case of separate collection (i.e. multiple containers), the lower final sorting cost interval is considered, and in the case of multi-commodity collection, the upper final sorting interval. The submitter is aware of the degree of simplification, but regulation would not standardise the method of intensification, i.e. in practice there would be a mixed regime – again, this is sufficient to estimate costs and compare options.

In the case of Option 2+, compared to Option 2 there are additional costs of approximately CZK 1.3 billion (development and operation of a digital deposit return system [DDRS] for 10 years). Option 2+ considers that part of the costs related directly to DDRS (e.g. container labelling) would be reimbursed to municipalities from the DDRS, but the DDRS cannot be designed as a fully-fledged EPR system (extended producer responsibility), as the separate collection infrastructure (albeit deposit-based) would still be in the APS system. Alternatively, Option 2+ could be a modification of the current EPR scheme under the APC, or it could in principle be merely a digital intermediary for deposits.

Table 30:Quantification of investments and operating costs by option

		current situation (2022)	Option 0 without additional measures	Option 1 beverage packaging deposit system (separate from the sorting system)	Option 2 expansion of the sorting network	Option 2+ extension of sorting network + introduction of DDRS
Quantification of investments and operating costs beyond the current situation	investments in a packaging return system	the current situation is the reference scenario	2 billion planned investments	5.8 billion establishment of a deposit system separate from sorted collection (distributors of bottled beverages)	2.8 billion separate containers for PET and aluminium/CZK 1.9 billion multi-commodity collection (municipalities)	3.2 billion separate containers for PET and aluminium/CZK 2.3 billion multi-commodity collection (municipalities) and establishment of DDRS (producers)
	necessary additional investments in sorting technologies			CZK 300 million final sorting line	CZK 18 - 24 billion separate containers for PET and aluminium/CZK 25-30 billion multi-commodity collection (various entities)	CZK 18 - 24 billion separate containers for PET and aluminium/CZK 25-30 billion multi-commodity collection (various entities)
	operating costs of the packaging return system		CZK 450 million current costs for the collection of PET and cans	1.7 billion /year of operation of the deposit system (paid through the handling fee to sellers of bottled beverages)	3.2 billion separate containers for PET and aluminium/CZK 2.9 billion multi-commodity collection (municipalities)	3.4 billion separate containers for PET and aluminium/CZK 3 billion multi-commodity collection (municipalities) and establishment of DDRS (producers)
	Total over 10 years from the implementation of the measure (investment lifespan of the collection infrastructure)		**6.5 billion risk of infringement for non-compliance with EU targets and adaptation of the PPWR Regulation** **additional costs CZK 23-35 billion implementation of measures to achieve the targets (between 2026-2029 and depending on the choice of Option 1 or Option 2+)**	**23 billion .**	**CZK 24-30 billion separate containers, lower final sorting** **CZK 29-35 billion multi-commodity collection, higher sorting** **risk of infringement for non-compliance with EU targets and adaptation of the PPWR Regulation** **additional costs CZK 1.3 billion the introduction of measures to achieve the targets (between 2026 and 2029, given the intensification investments already made, the introduction**	**CZK 25-31 billion separate containers, lower final sorting, DDRS** **CZK 29-35 billion multi-commodity collection, higher final sorting, DDRS**

					of DDRS under Option 2+ would be more likely)	

1.8.2 Commentary on Option 0 – without additional measures

Although the PPWR has not yet been adopted, the proposal is in the final stage of the EU legislative process (after trilogues), the provision on targets and the precondition for the introduction of a deposit for plastic beverage bottles and metal beverage containers is already certain, the proposal is merely undergoing a legislative technical correction (current information as at September 2024).

The SUPD collection targets for plastic beverage packaging are already set at a 90% sorting rate in 2029, and the current APC system will struggle to achieve this:

- It is already probably operating around its maximum, the main effect is that it does not represent a financial incentive to increase sorting by consumers, although consumers in the Czech Republic sort to a greater extent than in a number of EU countries.
- Changes in the methodology of packaging inclusion have a major impact, with the aim of recycling being linked to the purity of the material, which separate collection and sorting from MMW will never achieve to such an extent as separate collection. The methodological changes will lead to a reduction in the data reported so far on the sorting rate.

The PPWR also introduces targets for beverage cans, the achievement of which is in principle excluded in the case of Option 0. It is already clear at this point that the Czech Republic will have to implement a deposit system in some form between 2026 and 2029. Deposits on beverage cans only would be both highly uneconomical and environmentally inefficient – from the point of view of PET, which is the most environmentally effective when recycled into food-grade packaging.

The SUPD has increased, and then the PPWR will also increase the targets for the share of rPET recycled in PET bottles placed on the market; Option 0 will not provide enough such material within the Czech Republic over time, so rPET will have to be imported.

The PPWR sets recycling targets for plastic packaging as well as for aluminium packaging, Option 0 remains PET-dependent within the sorting system, while PET separation will lead to the need to adjust eco-modulation for other packaging.

The carbon footprint of transport does not play such a role in the life cycle of packaging, the increase in transport emissions is always outweighed by repeated recycling.

Option 0 without additional measures cannot be sufficient in the light of EU legislation, it will basically delay the adoption of measures.

1.8.3 Commentary on Option 2 – expansion of the sorting network

Option 2 is designed in such a way that it achieves the set objectives through network intensification measures and it is possible to request an exemption from the obligation to introduce deposits under the PPWR. The existing high-quality collection network would not suffice to create a sufficiently efficient system with a collection rate of 90%. Although Option 2 would probably (albeit at considerable and questionable costs) be able to meet the target for plastic beverage bottles, Option 2 is unlikely to meet the target for metal beverage containers, i.e. the Czech Republic will have to introduce some form of deposit between 2026 and 2029. Deposits on cans only would be both highly uneconomical and

environmentally inefficient – from the point of view of PET, which is the most environmentally effective when recycled into food-grade packaging.

- Without financial incentives for consumers (in the form of deposits), even with the current high level of custom to sort plastic beverage packaging, it is unlikely to increase further.
- The methodology for inclusion of packaging from final sorting fro MMW and mixed collection will continue to play a role, so it will not be possible to report such high sorting numbers.
- Option 2 will have difficulties in achieving full circularity – again the topic of material purity, or it will be achieved at other costs linked to the necessary cleaning of materials, etc.

It cannot be assumed that Option 2 would lead to a reduction in littering to the same extent as in the case of options with a deposit.

From the point of view of consumer convenience, it would also be necessary to somehow involve the retail network, which is the natural place of consumer concentration. Option 2 also envisages the expansion of the number of collection points to increase the collection performance and intensification of door-to-door collection systems. To meet the set EU targets, 1.7 million new collection containers would have to be placed and this would require an investment of CZK 1.9 to 2.8 billion, which would be borne by municipalities or would have to be realized in the form of investments by the authorised packaging company. The installation of new collection points would also increase the annual operating costs of municipalities and the authorised packaging company by approximately CZK 2.9 to 3.2 billion, and even despite these costs, the increase in the efficiency of collection would be relatively small due to the lack of direct financial incentives for consumers. These high costs are disproportionate to the expected increase in the amount of sorted packaging waste, pointing to the economic inefficiency of such an expansion without the addition of deposit-refund schemes.

1.8.4 Commentary on Option 2+ – expansion of the sorting network and introduction of DDRS

A possible solution is to combine Option 2 with the introduction of financial incentives for consumers – deposits through a digital system (DDRS). This would take the form of unique serial codes on containers, allowing direct financial motivation utilising digital settlement. This would allow financial incentives to be integrated into the current collection system. Such a solution could consist of a combination of common collection points with digital smart collection containers located at shops.

The risk of this option (apart from the cost itself) is that DDRS has only been technically tested in a few pilot projects, but has not yet been applied in any EU Member State in a dimension such as Option 2+. Technical requirements are currently being collected in order to determine the possibility of pilot testing of this form of motivation for beverage cartons.

In terms of environmental results, Option 2+ will not lead to as great a level of down-cycling avoidance, with all its consequences, compared to Option 1. On the other hand, it would be more effective in meeting the littering target than Option 2.

2 Advertisement in paper form form – flyers

2.1 Reason for submission and objectives

2.1.1 Definition of the issue

In the area of advertising in paper form (flyers), at least 2.2 billion flyers are printed annually (80% abroad, 20% in the Czech Republic) and only part of them find their readers, the rest end up in blue containers at best, part is used for domestic activities and the rest is lying in front of houses and surroundings when the delivery service leaves them in a pile in front of closed doors. Collection and collection should be paid for by distributors and not by municipalities.

Figure 19: Content of container in the village of Střížovice (2023)

Printed advertising flyers are at least occasionally browsed by 72 percent of the Czech population and used as a regular source of information about sellers' offers by 30 percent of Czechs (source: Czech Radio). This wastes paper and ink, which most people throw away without looking at them (see photo).

There is also a lack of awareness of the fact that everyone pays for their production, even if they do not make use of them.

How is paper recycled?

Recycling of paper mainly involves cellulose fibres. The more high-quality, long cellulose fibres there are in recycled paper, the less new wood is needed to produce paper.

First, workers sort out the old paper. Sometimes they have to sort it by hand to remove paper that is non-recyclable. Paper that is waxed, coated, and otherwise chemically treated, including hygienic paper supplies, is removed from the piles. The sorted paper goes on a conveyor belt, from which it proceeds to a special machine – a pulper. In the pulper, the paper is soaked in water for a quarter of an hour, and by mixing the softened paper, pulp is formed. Metals and paints are removed from the paper pulp.

Metal staples are removed from the paper pulp with the help of magnets.

The paints are removed by pumping air into the pulp and are collected on the surface of the resultant foam. The foam is then removed and safely disposed of in an incinerator.

Production of new paper – chemistry, chemistry, chemistry...

After the recycling process, the production of new paper begins, when the pulp is stratified between rollers, which squeeze out all the excess water, and then the mixture is dried. The dried mixture is used as is to produce new paper, or fibres from new wood are added to the mixture. Trees are grown specifically for paper production.

Then the paper is chemically bleached. Most often, pulp is dyed with dyes that contain chlorine or hydrogen peroxide. In addition to the chemicals used for paper dyeing, other chemicals are also used to improve the properties of the resulting paper.

Old recycled paper from which new paper can no longer be made is used to make toilet paper or boxes. Some old, repeatedly recycled fibres can no longer be reused for new paper, boxes or toilet paper. But even these fibres still have a use, for example, for the production of egg cartons or insulation.

In addition to a relatively large amount of chemistry, paper production also involves a large amount of water and energy.

According to the Association of Printing Businesses, paper for printing advertising flyers is not produced in the Czech Republic. However, all sorted flyers can be sold for recycling to foreign paper mills for about 150 €/t.

2.1.2 A description of the existing legal situation in the given area

Currently, advertising flyers are regulated by Act No 40/1995 on the regulation of advertising. This act prohibits the dissemination of unsolicited advertising in paper form, if it annoys the addressee, then regulates in particular the content of the advertisement. Advertising flyers are not otherwise regulated and billions of them are printed every year, most of them ending up as part of waste discarded in blue waste containers, the disposal of which is largely financed by municipalities, or as part of fuel.

An advertising flyer is a paper product containing a message, the subject matter of which is the promotion or offer of services or the offer of goods, which is not part of another product, does not fulfil any function other than the promotion of goods or services and which is intended to be handed over free of charge to the end-user.

2.1.3 Identification of stakeholders

a) business entities requesting advertising in paper form;
b) printers and distributors (business entities);
c) the public;
d) municipalities;
e) Czech Post;
f) inspection authorities (CEI, CTIA).

2.1.4 Description of the objectives

The main objective is to compensate municipalities for the costs associated with cleaning up flyers that are not disposed of in sorted municipal waste. Furthermore, a reduction in the cost of disposing of flyers ending in sorted waste. A side effect may be to influence the production of advertising flyers, the printing and subsequent distribution of which in the electronic era unnecessarily burdens the environment. However, in setting the fee, it must not be forgotten that the paper for printing advertising flyers, unlike other commodities in blue bins, is 100% recyclable and profitable, and is thus a sought-after raw material.

2.1.5 Risk assessment

In the event that this printing is not regulated and those who puts this printed matter into circulation is not financially responsible for its disposal, the budgets of municipalities will continue to pay the price as before, the so-called polluter pays principle.

2.2 Proposed solution options

2.2.1 Option 0 – current situation (no regulation of advertising flyers)

Leaving in place the current situation, where flyers are not legally entrenched and no fee is paid for their collection and disposal.

2.2.2 Option 1 – inclusion of advertising flyers in the collective system

Option 1 represents the legislative concept of flyers as packaging, i.e. including the marketing of advertising flyers (printing and distribution, import, etc.) in the collective system (within the scope of the authorised packaging company), i.e. practically introducing a fee through the collective system that will serve to cover the costs of collection and disposal of flyers by municipalities.

Printers, distributors

In connection with the introduction of a fee for printing and distributing flyers, we assume that:

- they will be required to register with the APC in the same way as the originators of packaging materials;
- they will pay fees related to the weight placed on the market;
- they shall not be required to submit upon request to the inspection authorities the technical documentation necessary to demonstrate compliance with obligations relating to heavy metal content, that it has been manufactured in accordance with harmonised technical standards, etc., and to inform their purchasers thereof.

Inspection activity

- All obligations arising from the amendment to the Act will be inspected by the CEI and the CTIA as part of their activities.

2.3 Assessment of costs and benefits

Identification of costs and benefits:

2.3.1 Option 0 – current situation (no regulation of advertising flyers)

Impacts on the national budget and other public budgets

The current situation represents benefits for Czech Post, which deals with printing and distribution of advertising flyers.

Impacts on international competitiveness of the Czech Republic

We do not anticipate any impact on the international competitiveness of the Czech Republic.

Impacts on the business environment

More than 2 billion flyers are printed and distributed annually in the Czech Republic, which represent benefits in the order of CZK 2-8 billion for printers and distributors . The price depends on the weight and is in the range of around CZK 1-4 per flyer (2-100 g). These entities include both large companies such as PNS and Czech Post, but also smaller distributors. Manufacturers then put the flyers into circulation and with this all their responsibility for them ends.

Flyers are currently used by retailers for promotional goods that they have purchased at a bargain price, for seasonal sales for goods that can no longer be returned to the manufacturer and cannot be stored, and interesting goods with which they try to entice people into their store. The main goal is to bring the customer into the store.

In the past, merchants used primarily paper flyers, but including due to the gradual increase in the price of input materials, digitization is gradually occurring. Especially with the development of smartphones, merchants are shifting from paper to electronic form.

Territorial impacts, including impacts on territorial self-governing units

Disposal of flyers represents a cost for municipal budgets.

- cleaning up public areas;
- waste disposal in the context of separate collection of paper.

The cost of cleaning up public areas is not available because cleaning up in municipalities takes place in various ways. The annual cost of disposing of approximately 33 thousand tonnes of flyers and catalogues in the context of disposing of sorted collection of paper is estimated at approximately CZK 176 million .

Table 31: Estimated costs of disposing of flyers and catalogues (source: EKO-KOM)

Amount of separated paper in municipalities (tonnes/year)	240,000
Share of flyers and catalogues in separated paper (%)	13.8
Average cost of paper disposal (CZK/tonne)	5,327
Estimated total cost of disposal of flyers and catalogues (CZK/year)	176,430,240

Social impacts, impacts on families, impacts on consumers

A 2015 study conducted at Mendel University found that 66% of respondents considered printed advertising documents to be an important factor in selecting goods as part of their purchasing behaviour. At that time, the average respondent also considered discount flyers to be very important and at the same time advertising messages on the internet as less important. However, since 2015, consumer preferences have changed significantly, while in 2020 only 24% of people used advertising materials before buying food through mobile apps, this year for the first time flyers lost their primacy (54% of the population uses mobile apps, 56% use flyers). The decline in the interests in flyers is explained by technological advances and lifestyle changes, as well as reducing costs for retailers. Therefore, retailers are gradually reducing the printing of flyers and some chains have completely abolished their distribution. l Despite the growing interest in mobile applications, for 54% of people, paper advertising messages are still important. Currently, with high food prices, consumer buying behaviour has changed. Customers mainly buy discounted goods - for example, 60% of food is sold on sale. The direct impact of printing a flyer is currently debatable, but it is still important for more than 50%. It is assumed that the socially disadvantaged are use mainly printed flyers and buy mainly discounted goods, for them flyers are crucial.

Environmental impacts

- Benefits
- none

- Costs
- waste of paper and wood, high water and energy consumption, regardless of the 100% recycling of flyers;
- pollution of houses and the environment by loose flyers;
- the environmental impacts associated with the transport and recycling of advertising flyers and catalogues, which account for about 13.8% of the total volume of paper in sorted waste.

Impacts related to non-discrimination and gender equality

The current situation represents only impacts related to the integration of men and women into the labour market. In the area of administrative work, it has a greater impact on women, whereas in the case of technical jobs (such as a garbage collector), it has a greater impact on men.

Impacts on the performance of the state statistical service

We do not anticipate any impact on the performance of the state statistical service.

Assessment of corruption risks

We do not anticipate any corruption risks.

Impacts on national security or defence

We do not anticipate any impact on the security and defence of the state.

2.3.2 Option 1 – inclusion of advertising flyers in the collective system

Impacts on the national budget and other public budgets

We do not anticipate any impact on the national budget or other public budgets.

Impacts on international competitiveness of the Czech Republic

We do not anticipate any impact on the international competitiveness of the Czech Republic.

Impacts on the business environment

The manufacturers of flyers indicate a threat in the reduction in the number of contracts, i.e. layoffs, they also declare that a certain group of the population considers this source of information important. Already at present, after the end of the distribution of flyers, some chains have returned to this activity, as it brings them a certain group of the population, which generates profits for these entities.

At present, most large retail chains are already digital, and they continue to envisage a gradual transition of all offers to digital, also in view of the ageing population, which is already using smartphones, and will thus be able to use the various offers in electronic form. However, it is not possible to quantify the overall impacts, we assume that the amount of the fee will be set as for other packaging material commodities.

Territorial impacts, including impacts on territorial self-governing units

Reducing the costs of collection and disposal of advertising flyers, which are used by about 30% of the population, which in the event of complete cancellation of advertising flyers and catalogues would represent a saving of about CZK 176 million for the separation and disposal of this material and further savings would be a reduction in the cost of cleaning up in public areas.

Social impacts, impacts on families, impacts on consumers

The amendment to the Act will increase the cost of printed flyers and further shift the offerings of merchants to electronic form, i.e. especially to various mobile applications. These offers are thus dependent on the technology owned by the population, especially smartphones, which are currently not owned by about 23% of the population of retirement age. This is the group of people that makes the most use of these offers and thus also save money. This is a specific group of customers who have time to shop around, do not pay for transport in some cities, etc. However, we assume that merchants will find some way to inform these people and attract them to their goods. There is also a transitional period of about 10 years before people who currently routinely use a smartphone, including merchants' applications, reach retirement age. In any case, the transition to a fully digital form will be very gradual and is fully within the competence of retail chains.

A reduction in the number of jobs in the event of a reduction in the volume of printed advertising and its distribution, as indicated by the chains, is questionable. In advertisements on the internet, these jobs with flexible working hours of 20 hours a week are being offered with wages of about CZK 10,000 per month. The work involves receiving flyers from the carrier and checking their quantity, preparing flyers for distribution, distribution of flyers in the assigned location to postal or bulk mailboxes or to drop-off locations, confirmation of the end of distribution by email or phone. There are currently enough of these jobs to be found. Employment impacts can only occur if printers' order volumes decline and they are forced to lay off workers.

Environmental impacts

The environmental benefit is every product that is not produced. This means that any flyer or catalogue that is not printed is positive for the environment (wood, recycled paper, ink production, energy consumption, water consumption, etc.).

Impacts related to non-discrimination and gender equality

The proposed situation represents only impacts related to the integration of men and women into the labour market. In the area of administrative work, it has a greater impact on women, whereas in the case of technical jobs it has a greater impact on men.

Impacts on the performance of the state statistical service

We do not anticipate any impact on the performance of the state statistical service.

Corruption risks

We do not anticipate any corruption risks.

Impacts on national security or defence

We do not anticipate any impact on the security and defence of the state.

2.3.3 Assessment of costs and benefits of the options

Table 32: Cost-benefit comparison

Option	Benefits	Evaluation	Costs	Evaluation
Option 0	**Impacts on the national budget and other public budgets**			
	revenues from printing and distribution of flyers (taxes, levies)	*		
	Impacts on the business environment			
	revenue from attracting customers to shops	* to **		
	Territorial impacts, including impacts on territorial self-governing units			
	revenue from sales for recycling	up to 150 EUR/tonne	costs of separating and disposing of flyers	up to CZK 176 million annually
	Social impacts, impacts on families			
	Savings on purchases for certain groups of people	**	clutter around homes	**
	Impact on consumers			
	savings when shopping	**		
	Environmental impacts			
			wasting paper, wood, energy, etc.	***

Option	Benefits	Evaluation	Costs	Evaluation
Option 1	**Impacts on the national budget and other public budgets**			
			decrease in revenues of Czech Post	*
			revenue decline due to reduced print volume	*
	Impacts on the business environment			
			increase in the cost of distributing flyers	*
	Territorial impacts, including impacts on territorial self-governing units			
	reduction of the costs of separation and disposal of flyers, clean-up	up to CZK 176 million annually	reduction of revenue from sales for recycling	up to 150 EUR/tonne
	Social impacts, impacts on families			
	reducing annoying ads and clutter around homes	**	poorer availability of sale prices for certain groups of the population	*
	Impact on consumers			
			poorer availability of sale prices for certain groups of the population	*
	Environmental impacts			
	reducing the consumption of raw materials and energy	***		
– no impact, *very low, **low, ***medium, ****high, *****very high				

Some identified impacts cannot be quantified precisely due to the unavailability of relevant data or the impossibility of estimating and quantifying future behaviour of the stakeholders. Where this is the case, the Final RIA Report evaluates these impacts in descriptive terms, ranking them according to the expected and consulted degree of impact using an ordinal scale, which is merely a simplified summary of the entire regulatory impact assessment (RIA). The symbols indicate the expected degree of impact of the proposed changes as ascertained in the course of the consultation process, ranking them from very low (*) to very high (*****).

2.4 Ranking of the options and selection of the most suitable option

1. **Option 1 – inclusion of advertising flyers in the collective system**
2. Option 0 – current situation (no regulation of advertising flyers)

After considering the costs and benefits, Option 1 was chosen, which stipulates that advertising flyers are also considered packaging. Advertising flyers end up in sorted municipal waste (‘blue containers’) with other packaging materials, where they account for about 14% of their content. However, no recycling fees are paid for advertising flyers. This is a case of free-riding, where the costs of waste treatment are borne by someone (municipalities from their budgets) other than the one who should be responsible for the product (the one who produced it or had it produced, according to the extended producer responsibility principle). Option 1 corrects the situation by stipulating that, as in the case of packaging, the persons marketing advertising flyers or putting them into circulation are responsible for them. Currently, retail chains restrict the distribution of flyers, but this is still a widely used method of promoting goods and services. This should lead to a reduction in the distribution of flyers and a shift to on-line promotion or use of the polluter pays principle. Option 1 saves material and energy, as well as saving municipal budgets, which now pay for cleaning, separation and disposal of advertising flyers, which are often left untouched in municipal containers.

3 Beverage cartons

3.1 Reason for submission and objectives

3.1.1 Definition of the issue

Beverage cartons have been in use for more than 65 years in the Czech Republic and since 2003 we have been sorting them on the basis of a pilot project, in some places together with plastics and in some places separately. Unfortunately, we do not place emphasis on collection and recycling targets as for other materials (paper and cardboard, iron, wood, plastic) and overall collection is at 25% and total recycling is only about 20% of the total annual production of around 17,500 tonnes. (source: Tetra Pak, EKO-KOM)

Beverage cartons, popularly called tetrapaks, are composite packaging made of multiple materials (paper, aluminium, polyethylene) and the current Packaging Act does not set targets for their collection and use. As part of the reporting on the use of waste beverage cartons, it is not considered comprehensively, but according to individual components. For this reason, there is no pressure for proper collection and recycling as for other packaging.

There are processes for recycling the materials of which composite beverage cartons are composed, in some processes down-cycling and using the material in products as insulating boards, but beverage cartons can also be separated into individual components, which can then be processed separately and contribute to the circularity of commodities in the packaging industry.

Composition of beverage cartons

A beverage carton, for example a container for juice, UHT milk, kefir, cream, wine, is composed of several layers:

- paper - 70 to 85% - makes the carton strong and durable;
- plastic - polyethylene – 20% - impermeable to water and micro-organisms;
- aluminium - 5% - protects the contents from light, oxygen and bacteria.

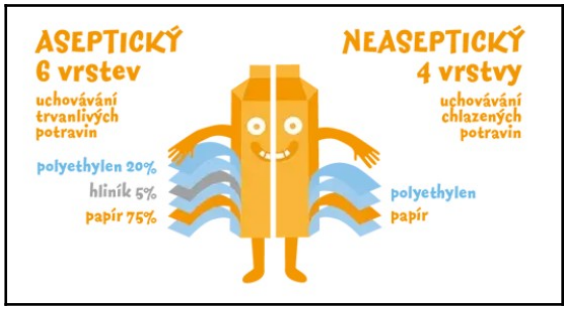


Figure 20: Composition (www.kamsnapojiacem.cz)

Beverage cartons are divided into two types according to their composition:

ASEPTICKY 6 vrstev	ASEPTIC 6 layers
Uchovávaní trvanlivých potravin	Preservation of long-life food
NEASEPTICKY	NON-ASEPTIC
4 vrstvy	4 layers
Uchovávaní chlazených potravin	refrigerated food storage
polyethylen 20%	polyethylene 20%
hliníky 5%	aluminium 5%
papír 75%	paper 75%

- aseptic packaging - contain aluminium foil - used to preserve long-life products without the use of preservatives and refrigerators;
- non-aseptic packaging - without aluminium foil - used for pasteurised beverages and food.

Ways of sorting beverage cartons

In the Czech Republic, there are many ways to handle waste beverage cartons. Different ways across regions or municipalities can also lead to many people preferring to throw beverage cartons into mixed waste rather than examining waste bins, looking for the right sticker, etc. Beverage cartons can be collected:

- separately (large cities – around 1% of municipalities, but around 35% of the population);
- multi-commodity (paper, plastic, beverage carton);
- with paper;
- with plastic (approximately 85% of municipalities).

Figure 21: Sticker (EKO-KOM a.s.)

NÁPOJOVÉ KARTONY	BEVERAGE CARTONS

PROSÍME, SEŠLÁPNOUT NEBO ROZLOŽIT!	PLEASE, FLATTEN OR FOLD OPEN!
Krabice od džusů mlecych výrobku vin opod.	Boxes from juice, milk products, wine, etc.
DĚKUJEME VÁM, ŽE TŘÍDÍTEI	THANK YOU FOR SORTING!

Recycling of beverage cartons

Currently, there are recycling methods, each based on a different principle and recovery of the material:

- paper part – paper is separated in paper mills by crushing and pulping and used in the production of other paper products (the remaining PE material and aluminium serve as fuel), Bělá pod Bezdězem, Žimrovice, Brno;
- individual components - Plastigram in Sokolov with patented technology for the separation of plastic and aluminium;
- building boards – an alternative to fibreboard and gypsum boards, Packwall (Flexibau) boards easily replace MDF, HDF and OSB in the furniture industry. The collected cartons are washed, crushed into small pieces, dried and mechanically and heat treated to produce building and insulation boards.

Recycled materials can be used for the production of new beverage packaging, but because mainly milk is packed in beverage cartons, this is not possible due to strict food contact requirements (FSA). (Source: EKO-KOM, Tetra Pak)

3.1.2 A description of the existing legal situation in the given area

Beverage cartons do not have a definition in the Packaging Act, they are included in the definition of ‘beverage container’ even though they have been packaging for more than 65 years, and thus there are no collection and recycling targets.

3.1.3 Identification of stakeholders

g) producers of ‘carton’ containers;
h) producers of beverages and food placed in ‘carton’ containers;
i) consumers;
j) municipalities;
k) the processing industry.

3.1.4 Description of the objectives

The main objective is to set collection and recycling targets as for other packaging and thus achieve an increase in collection and recycling and consequent savings of primary raw materials. The aim is to ensure the circularity of such packaging and to reduce the amount of municipal waste landfilled or used for energy.

3.1.5 Risk assessment

If not all types of beverage packaging are covered by the Packaging Act in terms of setting collection and recycling targets, there will continue to be a lack of sorting and recycling and thus an increase in the consumption of primary raw materials in the production of different types of products and an increase in waste that ends up in incinerators or landfills.

3.2 Proposed solution options

3.2.1 Option 0 – current situation (without setting collection and recycling targets)

Beverage cartons do not have a definition in the Packaging Act, they are included in the definition of 'beverage container' even though they have been packaging for more than 65 years, and thus there are no collection and recycling targets.

3.2.2 Option 1 – setting collection and recycling targets

Regulation of beverage cartons by the Packaging Act:

- beverage cartons are multi-layer composite packaging containing paper and plastic, or aluminium, used to preserve beverages or foodstuffs of a liquid or semi-liquid consistency, in particular milk or milk products, juices, purée or wine;
- a take-back target of 60% of the quantity placed on the market in 2030 and later (i.e. around 10,700 tonnes/year);
- a recycling target of 55% of the amount placed on the market (i.e. around 9,900 tonnes/year) in 2030-2034 and 60% from 2035 onwards.

3.3 Assessment of costs and benefits

Identification of costs and benefits:

3.3.1 Option 0 – current situation (without setting collection and recycling targets)

Impacts on the national budget and other public budgets

The current situation represents revenues linked to the collection and recycling of beverage cartons (collection companies, sorting lines, recycling – purchase of goods and materials, employment). Costs can also include various subsidies such as subsidies in the amount of CZK 30.015 million in 2019-2023, which was paid to Plastigram Industries in the Innovation Programme from Operational Programme Enterprise and Innovation for Competitiveness.

Impacts on international competitiveness of the Czech Republic

We do not anticipate any impact on the international competitiveness of the Czech Republic.

Impacts on the business environment

Collection and recycling of beverage cartons in the business environment are currently being performed by collection companies, sorting lines, recycling centres (Packwall Milevsko, Plastigram Sokolov). The manufacturers placing beverage cartons on the market include Tetra Pak, Elopak and SIG Combiblock.

Territorial impacts, including impacts on territorial self-governing units

At present, about 4,500tonnes of beverage cartons are collected through collection containers (separately, with plastic, with paper). The average cost of paper collection in 2022 was CZK 6069/t and the cost of plastic collection CZK 9422/t, as beverage cartons are collected together with plastic in many municipalities, we will use a value of CZK 9000/t to estimate the cost (source: Ecokom, 2022).

Table 33: Estimate of municipal costs – current situation

Estimate of municipal costs – current situation	
Average cost of BC collection and transport (CZK/tonne)	9,000
Quantity of BC collected separately (t)	4,500
Collection costs for BC (CZK)	40,500,000
Average cost of BC collection and transport (CZK/tonne)	3,466
Quantity of BC that ends up outside the collection system (t)	13,000
Costs of collecting BC as part of MMW (CZK)	**45,058,000**
Total municipal costs for collection and transport of BC (CZK/year)	**85,558,000**

Social impacts, impacts on families, impacts on consumers

The current situation, when beverage cartons are not covered by legislation, may also lead to the fact that there is a lack of information among the population and thus improper handling of this packaging, and a large part ends up outside of take-back points (orange container, yellow container, blue container, etc.). Residents in some parts of the country are uninformed or unmotivated.

Environmental impacts

The basic environmental impacts include the loss of materials that are used for the production of beverage cartons (paper, plastic, aluminium). In particular, the loss of high-quality paper, which has long fibres and can be recycled several more times.

With a volume of approximately 17,500 tonnes of beverage packaging:

- around 75% of the total volume is paper (around 13,000 tonnes of paper) – around 5.2 billion packages;
- recycling of about 20% of the total volume (about 3,500 tonnes of paper) – about 1.4 billion packages;
- weight of a package of paper weighing 80 g/m^2 (500 pcs) – 2.5 kg.

Impacts related to non-discrimination and gender equality

The current state of play does not constitute an impact in relation to non-discrimination. Setting collection targets will have a greater impact on women because, according to available studies and statistics, women sort waste more than men.

Impacts on the performance of the state statistical service

The current situation does not have any impact on the performance of the state statistical service.

Assessment of corruption risks

We do not anticipate any corruption risks.

Impacts on national security or defence

We do not anticipate any impact on the security and defence of the state.

3.3.2 Option 1 – current situation (without setting collection and recycling targets)

Impacts on the national budget and other public budgets

We do not anticipate any impact on the national budget or other public budgets.

Impacts on international competitiveness of the Czech Republic

We do not anticipate any impact on the international competitiveness of the Czech Republic.

Impacts on the business environment

Beverage carton manufacturers

In connection with the introduction of targets for beverage cartons, we can expect a slight increase in connection with the retention of reporting on individual components (paper, plastic, aluminium) and the total amount of beverage cartons placed on the market. Since these are standardized products, we do not expect any major change. Furthermore, with the increase in municipal costs, we expect the fees for beverage cartons to be increased so that the entire collection system can be compensated to municipalities.

Recycling companies

There are currently two companies in the Czech Republic that are engaged in recycling. The consultations showed that they are capable of covering the required increase in the recycling of beverage cartons (one will need to obtain an EIA permit).

Territorial impacts, including impacts on territorial self-governing units

The municipal cost estimates below are very rough estimates. Many variables enter the final costs, such as:

- costs of disposal of MMW – landfill, incinerator;
- collection and sorting costs;
- current demand for raw materials and their price, etc.

In any event, the producers of products placing beverage cartons on the market are aware of the potential increase in fees for higher collection and recycling, which will in turn have to cover these increased costs for municipalities.

Table 34: Estimation of municipal costs when setting targets

Estimated municipal costs for a 70% target	
Average cost of BC collection and transport (CZK/tonne)	9,000
Quantity of BC collected separately (t)	12,250
Collection costs for BC (CZK)	**110,250,000**
Average cost of BC collection and transport (CZK/tonne)	3,466
Quantity of BC that ends up outside the collection system (t)	5,250
Costs of collecting BC as part of MMW (CZK)	**18,196,500**
Total municipal costs for collection and transport of BC (CZK/year)	**128,446,500**

Estimated municipal costs for a 90% target	
Average cost of BC collection and transport (CZK/tonne)	9,000
Quantity of BC collected separately (t)	15,750
Collection costs for BC (CZK)	**141,750,000**
Average cost of BC collection and transport (CZK/tonne)	3,466
Quantity of BC that ends up outside the collection system (t)	1,750
Costs of collecting BC as part of MMW (CZK)	**6,065,500**
Total municipal costs for collection and transport of BC (CZK/year)	**147,815,500**

Social impacts, impacts on families, impacts on consumers

Recycling of beverage cartons in the Czech Republic is currently provided by two companies. One is located in Sokolov and one in Milevsko.

In connection with the gradual increase in recycling targets, first to 50% and then from 2030 to 70%, we also expect an increase in employment opportunities.

Milevsko

- population 18,235 in 2020, unemployment rate 2.7%.

Figure 22: Designation of the Milevsko extended municipal area (Wikipedia)

Sokolov

- population 85,964 in 2023, unemployment rate 4.6%

Figure 23: Designation of the Sokolov extended municipal area (Wikipedia)

Environmental impacts

Setting collection targets, and especially recycling, saves primary resources.

With a volume of approximately 17,500 tonnes of beverage packaging:

Table 35: Collection and collection of material according to set objectives

Collection and recycling targets for BC (tonnes)		2025-2029		from 2030	
		collection (%)	recycling (%)	collection (%)	recycling (%)
Beverage cartons	100%	70	50	90	70
Paper (75%)	13,125	9,188	6,563	11,813	9,188
Plastic (20%)	3,500	2,450	1,750	3,150	2,450
Aluminium (5%)	875	613	438	788	613
Total	17,500	12,250	8,750	15,750	12,250

Impacts related to non-discrimination and gender equality

The draft represents only impacts related to the integration of men and women into the labour market. In the area of administrative work, it has a greater impact on women, in the case of technical jobs it has a greater impact on men.

The draft can be expected to have a different impact on women and men. As women spend on average more time on household chores (including waste management) than men, women are more likely to be responsible for taking beverage cartons to collection points.

The draft will have an impact on the internal functioning of waste management entities employing women and men in various positions (from workers on sorting lines to managers). Despite automated sorting processes, the assistance of workers on sorting lines and the processing industry is required.

Impacts on the performance of the state statistical service

We do not anticipate any impact on the performance of the state statistical service.

Corruption risks

We do not anticipate any corruption risks.

Impacts on national security or defence

We do not anticipate any impact on the security and defence of the state.

3.3.3 Assessment of costs and benefits of the options

Table 36: Cost-benefit comparison

Option	Benefits	Evaluation	Costs	Evaluation
Option 0	Impacts on the national budget and other public budgets			
			subsidy for Plastigram (2019-2023)	CZK 30.015 million .
	Impacts on the business environment			
			untapped recycling technologies	**
	Territorial impacts, including impacts on territorial self-governing units			
			costs of disposing of BC in mixed waste	**
	Environmental impacts			
			loss of raw materials (especially high-quality long-fibre paper)	****
Option 1	Impacts on the national budget and other public budgets			
	revenue related to job growth	*		

	Impacts on the business environment			
	increasing the usability of processing capacities	***	EKO-KOM fees for BC as packaging material	*
	Territorial impacts, including impacts on territorial self-governing units			
	compensation for collection and collection fees	**	increase in collection and collection costs	approx. 40-50%
	Social impacts, impacts on families			
	new jobs	*		
	Impact on consumers			
			pass-through of the fee to prices	*
	Environmental impacts			
	saving of primary raw materials	****		

– no impact, *very low, **low, ***medium, ****high, *****very high

Some identified impacts cannot be quantified precisely due to the unavailability of relevant data or the impossibility of estimating and quantifying future behaviour of the stakeholders. Where this is the case, the Final RIA Report evaluates these impacts in descriptive terms, ranking them according to the expected and consulted degree of impact using an ordinal scale, which is merely a simplified summary of the entire regulatory impact assessment (RIA). The symbols indicate the expected degree of impact of the proposed changes as ascertained in the course of the consultation process, ranking them from very low (*) to very high (*****).

3.4 Ranking of the options and selection of the most suitable option

1. **Option 1 – setting collection and recycling targets**
2. Option 0 – current situation (without setting collection and recycling targets)

Option 1 was chosen, which saves primary material and energy, as well as saving municipal budgets, which now cover the costs of collecting, separating and disposing of beverage cartons. At the same time, the development of the recycling industry and the circular economy in the Czech Republic will be supported.

4 Implementation and enforcement of the recommended option

The authorities involved in the implementation and enforcement of the proposed legislation in the field of the Packaging Act are:

a) MoE – central administrative authority for the management of packaging and packaging waste;

b) MIT – issues an opinion on an application for an authorisation decision;

c) CTIA – checks the take-back by persons who put packaging on the market or put it into circulation by selling it to the consumer;

d) CAFIA – checks compliance with the obligations relating to prevention, placing on the market or putting into circulation, labelling and reuse of packaging that comes into direct contact with food;

e) CEI – checks compliance with this Act by legal entities, natural persons engaged in business and municipalities, with the exception of areas in which control is exercised by another of the above-mentioned state administration bodies, and imposes penalties for offences;

f) Customs offices – check whether packaging or packaging means imported into the Czech Republic or transported from EU Member States to the Czech Republic comply with the requirements of this Act.

Enforcement of the Packaging Act

The amendment introduces new obligations within the extended responsibility of producers of single-use beverage packaging (obligation to conclude an agreement with the deposit system operator, to label returnable packaging, to comply with financial flows related to participation in the deposit system, to keep records and separate accounting for the deposit, to achieve a minimum level of collection of waste from returnable packaging), but some new obligations also affect other entities participating in the value chain, such as sellers of beverages in returnable single-use packaging and entities providing for the return of returnable waste packaging, which are not necessarily the same entities (ensuring the return of packaging, registering the point of collection with the operator, handing over the returned packaging to a designated entity). The consequence of these changes is a comprehensive revision of the provisions on offences in § 44 to § 45a.

The upper limits of fines for infractions committed by corporate entities and sole traders placing packaging or packaging means on the market or putting them into circulation range from CZK 500,000 to CZK 15,000,000, which means an increase compared to the current regulation in some cases. The penalty for non-compliance with the minimum take-back level shall be maintained.

An important extension of the scope of the amendment to the Packaging Act is also the creation of a corporate entity, the deposit system operator, responsible for effectively setting the performance of the deposit system so that the necessary collection rate of returnable packaging according to European targets is effectively achieved, while taking into account the fact that plastic bottles from certain beverages (milk and milk drinks) are not included in the mandatory deposit system.

Infractions committed by an authorised packaging company also range from a maximum of CZK 500,000 to CZK 15,000,000, which means an increase compared to the current regulation in some cases. The penalty for non-compliance with the minimum take-back level shall be maintained. A specific list of infractions applies to the operator of the deposit system, for which the maximum fine is set at up to CZK 15,000,000. Failure to achieve the minimum level of take-back of waste from selected returnable single-use packaging may be penalised up to the amount set as the product of the weight of waste from selected returnable single-use packaging expressed in tonnes missing to achieve the set minimum level of take-back of waste from selected returnable single-use packaging and the amount of CZK 200,000.

5 Review of efficacy of the legislation

A review of the efficacy of the regulation will be carried out by the Ministry of the Environment within 5 years of the effective date of the proposed legislation.

In particular, the following indicators will be monitored according to currently available values (see tables in section 1.2 Definition of the issue):

a) The level of collection of waste plastic beverage bottles and metal beverage containers in relation to mandatory targets under EU legislation and their level of recycling (verification of the bottle-to-bottle, can-to-can principle);

b) the recycled content of new plastic beverage bottles;

c) Penalties for infractions committed by obliged entities within the entire system of compulsory deposit (deposit system operator, producers of beverages in returnable containers, last sellers or other entities placing beverages on the market or putting them into circulation, operators of collection points, carriers),

and then it will be evaluated whether the parameters of the deposit system for single-use beverage packaging have been optimally set. The data will be obtained through the deposit system operator, the Czech Environmental Inspectorate and the Czech Trade Inspection Authority.

6 Consultation and data sources

The data and information provided in the Final Report are based on documents from the Waste Department, participation in the round tables of the entities concerned held between November 2022 and August 2023, communication with Slovak counterparts and other available documents, or personal acquaintance with the recycling of beverage packaging at PETKA CZ or a pilot project at Lidl in Lhotka or Kaufland Czech Republic at Na Vypichu.

The complete draft amendment to the Act passed the standard consultation procedure at the turn of 2023 and 2024 and conference settlement on 11 April 2024. On the basis of the comments, it has been amended or supplemented in particular in the following areas:

- experience from abroad, especially from Slovakia;
- impacts on the Czech Trade Inspection Authority, including financing;
- impacts on municipalities (calculator, etc.);
- impacts on business (packaging manufacturers, retailers);
- environmental impact;
- updating data (packaging, flyers) etc.

As part of the legislative process, the material was studied by the RIA Commission, which commented on it with observations, findings and recommendations on 12. 7. 2024. This involved, in particular:

- clarification of the definition of the issue, targets and risks;
- updating the numerical values that have changed in the course of the legislative processes;
- impacts on the public;
- specifying the choice of the size of the sales area;
- a more comprehensible comparison of options, taking into account the available data;
- other minor clarifications and additions to the information or available data.

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7 List of abbreviations

APC	Authorised packaging company
CETA	Centre of Economic and Market Analyses
ČAPPO	Czech Association of Petroleum Industry and Trade
COC	Czech Olympic Committee
DDRS	Digital Deposit Return System
VAT	Value added tax
DPP	Prague Public Transit Company
DRS	Deposit Return System
EC	European Commission
EKO-KOM	EKO-KOM a.s.
EU	European Union
HDPE	high-density polyethylene
HMP	City of Prague
LDPE	low-density polyethylene
CD	City District
MIT methodology	Procedures for Measuring and Re-measuring the Administrative Burden on Businesses
MI methodology	Methodology for Planning the Costs of the Exercise of State Authority
MoE, Ministry	Ministry of the Environment
NK	Beverage cartons
NSP	National system of professions
WM	Waste management
PE	Polyethylene:
PET	polyethylene terephthalate
PP	polypropylene
PS	polystyrene
PSAS	Pražské služby a.s.
PVC	polyvinyl chloride
rPET	Recycled polyethylene terephthalate
RVM	reverse vending machine
MMW	mixed municipal waste
SMO, SMOČR	Association of Towns and Municipalities of the Czech Republic

SMS, SMSČR	Association of Local Governments of the Czech Republic
SOCR ČR	Confederation of Commerce and Tourism of the Czech Republic
CAFIA	Czech Agriculture and Food Inspection Authority,
TCP	Trade centre Praha a.s.
THMP	Technologie hlavního města Prahy a.s. [Prague lighting]
TSK	Technická správa komunikací hl. m. Prahy a.s. [Prague road management]

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