

# Resource efficiency and circular economy in Europe – even more from less

An overview of policies, approaches and targets of the  
Czech Republic in 2018

July 2019



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## Acknowledgements

This country profile is based on information reported by the Eionet network and, in particular, the National Reference Centres on Resource Efficiency and Circular Economy. The information is current as of March 2019, when members of Eionet verified the content of this profile.

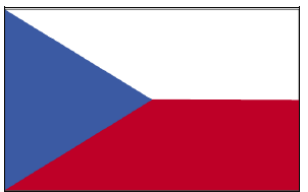

This country profile was prepared as part of the 2019 EEA review of material resource efficiency, circular economy and raw material supply policies, which aimed to collect, analyse, and disseminate information about experience with the development and implementation of these policies in EEA member and cooperating countries.

At the time of writing, a summary report is being finalised. The report reflects on trends, similarities and differences in policy responses, showcases selected policy initiatives from member countries and identifies possible considerations for the development of future policies.

These country profiles were compiled and finalised by members from the European Topic Centre on Waste and Materials in a Green Economy, namely Bart Ullstein, Bettina Bahn-Walkowiak, Jeroen Gillabel, Margareta Wahlström, Jutta-Laine Ylijoki, Dirk Nelen, Theo Geerken, Veronique Van Hoof and Evelien Dils. The responsible EEA project managers for the work were Pawel Kazmierczyk and Daniel Montalvo.

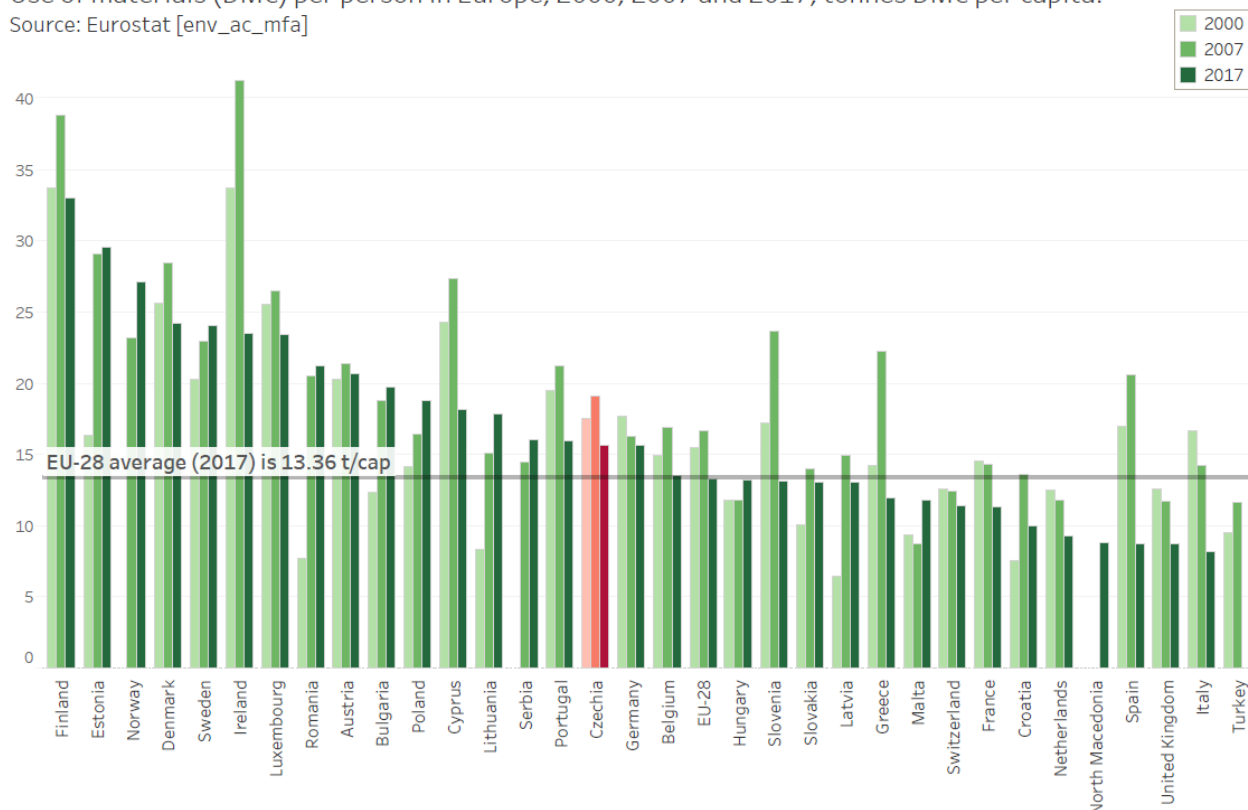
## Czech Republic, facts and figures

Note: data in this section was sourced from Eurostat databases (April 2019), except where noted otherwise

	<p><b>GDP:</b> EUR 191.7 billion (1,2 % of total EU28 in 2017)</p> <p><b>Per capita GDP:</b> 18,100 Euro (purchasing power standard) (60.3 % of EU28 average per capita figure in 2017)</p> <p><b>Use of materials (domestic material consumption (DMC))</b>  166 million tonnes DMC (2.4 % of EU28 total in 2017)  15.7 tonnes DMC per capita (117.2 % of EU28 average per capita in 2017)</p> <p><b>Structure of the economy:</b>  agriculture: 2.3 %  industry: 37 %  services: 60.7 %</p> <p><b>Surface area:</b> 78.9 thousand square kilometres (km<sup>2</sup>) (1.77 % of total EU-28)</p> <p><b>Population:</b> 10.6 million (2.1 % of EU28 total in 2017)</p>
	

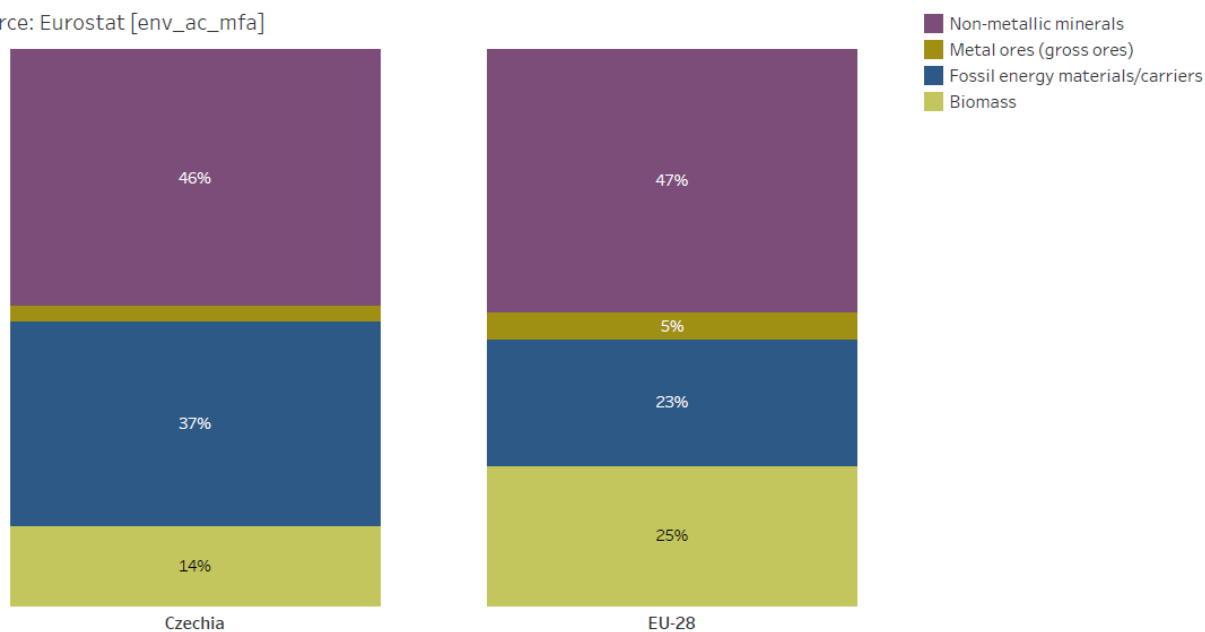
Use of materials (DMC) per person in Europe, 2000, 2007 and 2017, tonnes DMC per capita.

Source: Eurostat [env\_ac\_mfa]



## Czechia & EU-28. Domestic Material Consumption by material category, 2017.

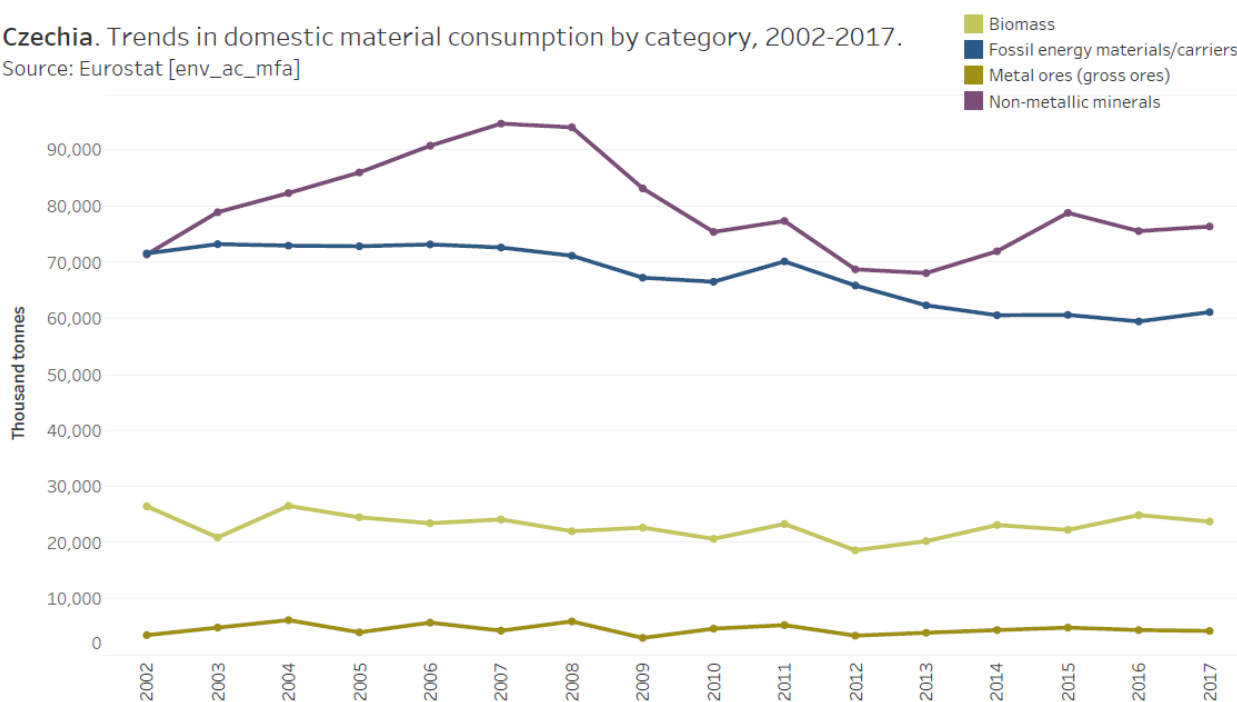
Source: Eurostat [env\_ac\_mfa]



Note: The domestic material consumption categories 'other products' and 'waste for final treatment and disposal' are excluded from the figure.

## Czechia. Trends in domestic material consumption by category, 2002-2017.

Source: Eurostat [env\_ac\_mfa]

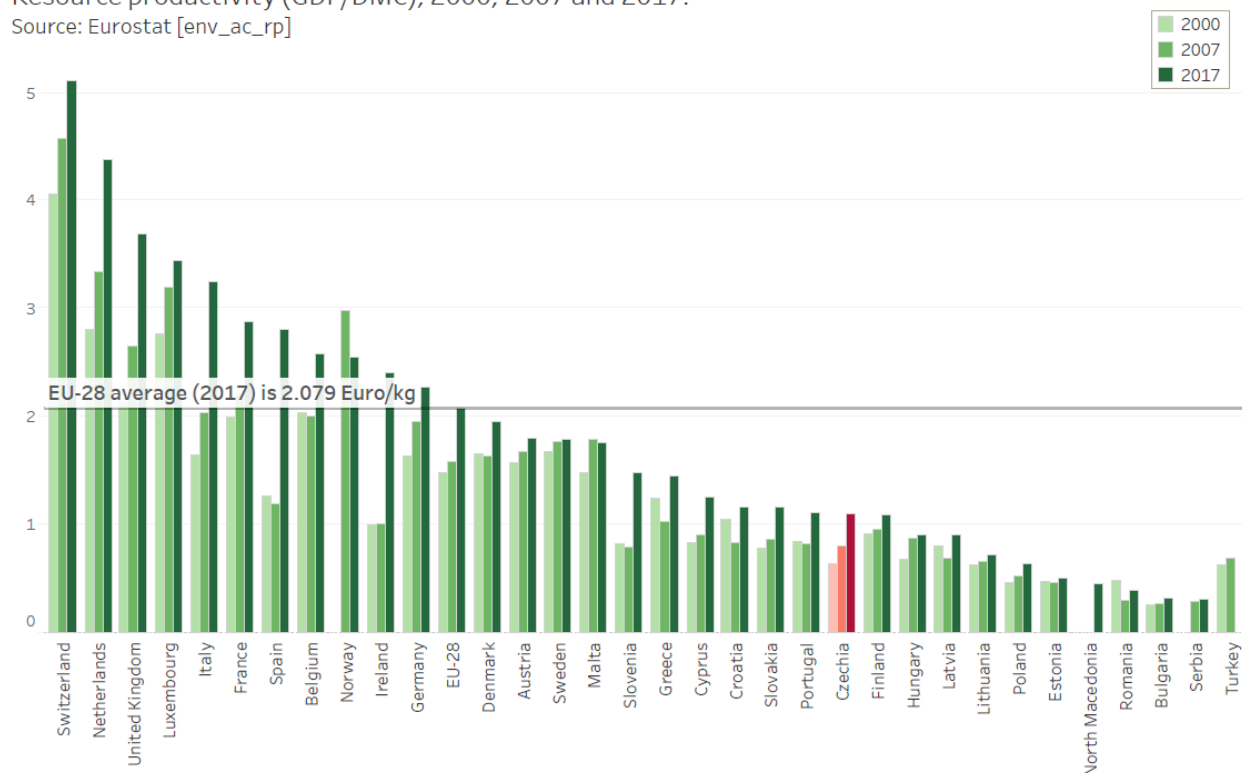


Note: The domestic material consumption categories 'other products' and 'waste for final treatment and disposal' are excluded from the figure.



## Resource productivity (GDP/DMC), 2000, 2007 and 2017.

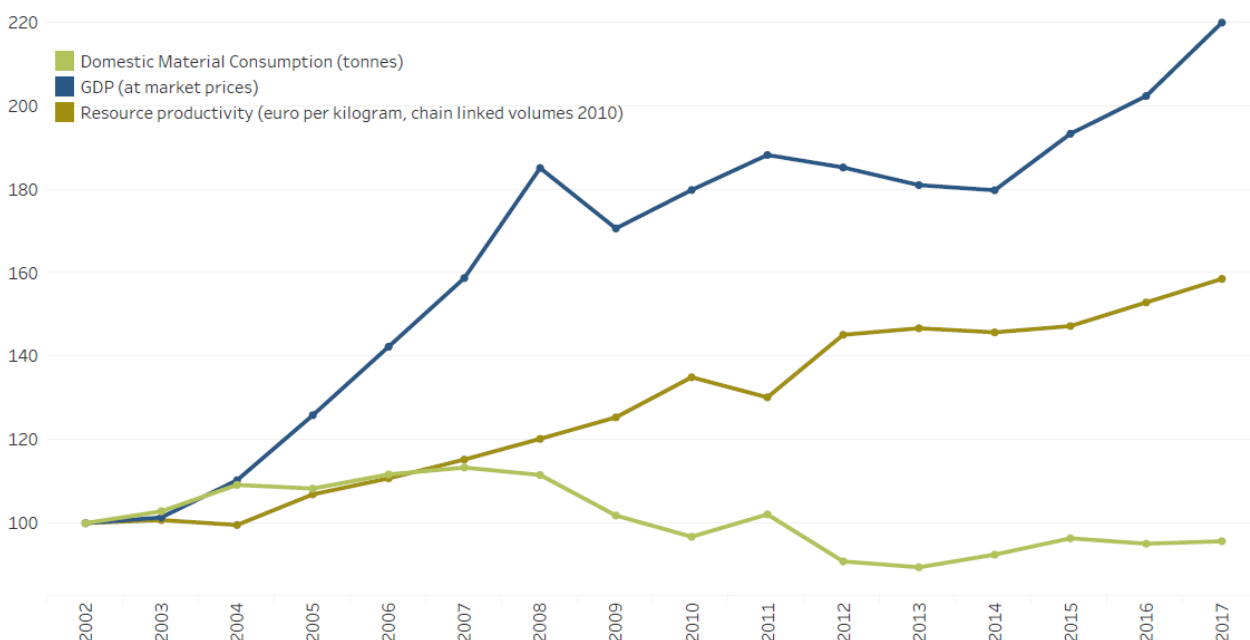
Source: Eurostat [env\_ac\_rp]



Note: GDP expressed in chain linked volumes 2010.

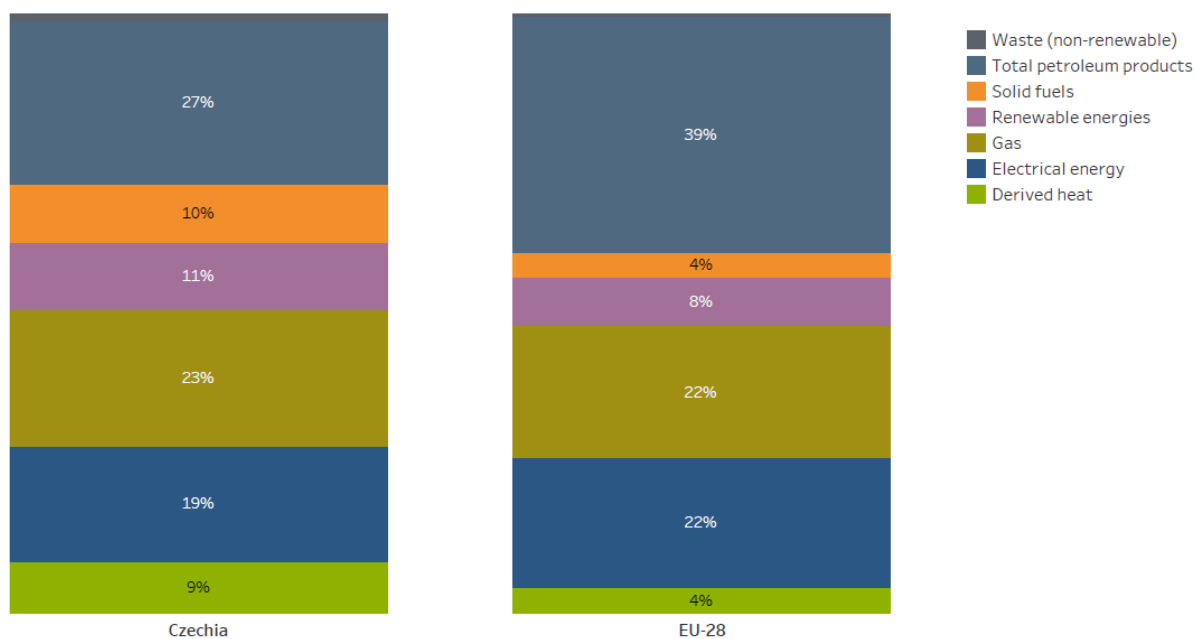
## Czechia. GDP, DMC and resource productivity trends, 2002-2017, index 2002=100.

Source: Eurostat [env\_ac\_mfa], [env\_ac\_rp] & [nama\_10\_gdp]



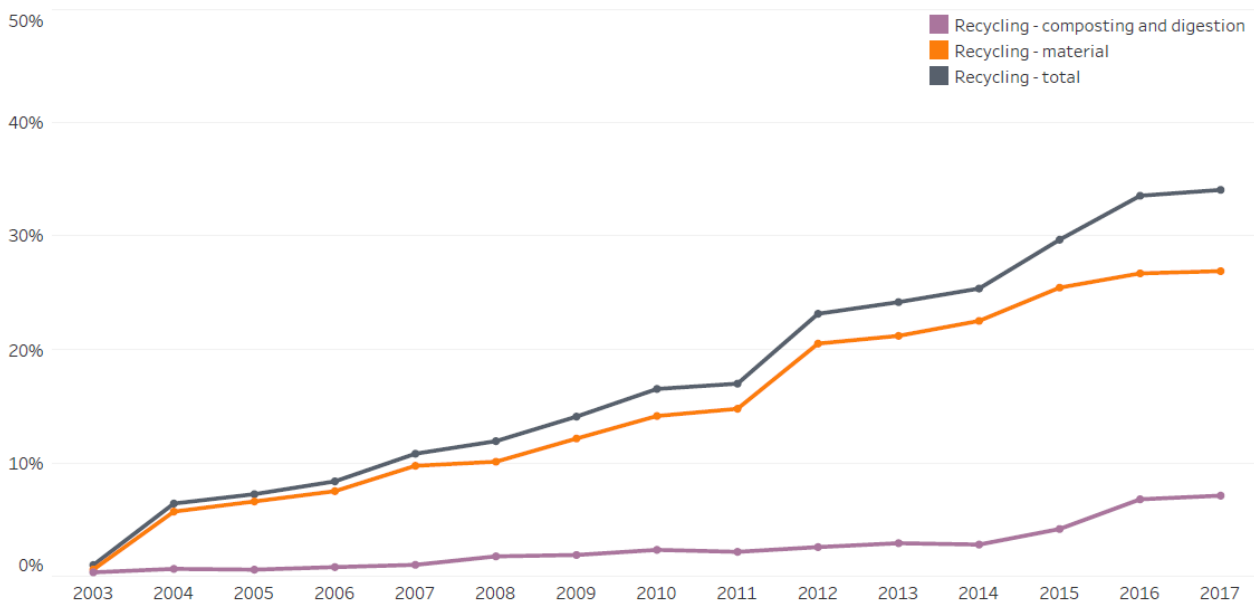
## Czechia & EU-28. Primary energy consumption by energy product, 2016.

Source: Eurostat [nrg\_100a]



## Czechia. Recycling of municipal waste, 2003-2017, as share of total waste treatment.

Source: Eurostat [env\_wasmun]



Note: The amount of municipal waste treatment is reported for the treatment operations incineration (with and without energy recovery), recycling, composting and landfilling.



## Policy framework

### Driving forces for material resource efficiency and circular economy

In the Czech Republic the following aspects are the main needs and motivations which drive the development and implementation of policies related to material resource efficiency, circular economy and raw materials supply.

1. The need to secure raw materials for the Czech economy.
2. To promote the competitiveness of the Czech Republic.
3. Ensuring sources of critical raw materials to secure security for the state. The current list of the most critical raw materials should be compiled by industrial companies. The raw materials policy of the Czech Republic supposes as that the critical raw materials are those on the EU's list of EU Critical Raw Materials (CRM) plus lithium, titanium, tantalum, zirconium and uranium.
4. Creating new jobs – addressing social issues.
5. Protecting the environment and human health.
6. More recycling of waste as a source of raw materials, as opposed to the loss of primary commodities to landfill.
7. Amendment of EU and national legislation to promote higher recycling rates of secondary raw materials and the conversion of waste to source materials.

### Dedicated national strategies or roadmaps for material resource efficiency and for circular economy

The Czech national material resource efficiency strategy has a general basis in the Strategic Framework Czech Republic 2030. The Czech Republic does not currently have a separate document relating to this area. The issue of the effective use of resources is addressed in part through a number of national strategies mentioned in the Policies which include elements of material resource efficiency section.

The Czech Republic does not have a dedicated strategy for the implementation of circular economy measures. The strategy for the circular economy in the Czech Republic, **Circular Czechia 2040**, is currently in an initial preparation phase.

Circular Czechia 2040 will be comprehensive national circular economy strategic framework. Expected year for adoption is 2020 and strategy will come into force in 2021. The framework will specify main priorities and targets for circular economy in Czech Republic.

Many of circular economy principles are embedded in the Waste Management Plan of the Czech Republic 2014–2024, the Czech Republic 2030 strategic framework and the Secondary Raw Materials Policy of the Czech Republic for the period 2019–2022. All of these documents are discussed in the Policies which include elements of material resource efficiency section.

### Overview of dedicated national or sectoral strategies for raw materials

#### The Raw Material Policy of the Czech Republic on Mineral Materials and their Resources

The subject of this strategy is how to secure the raw materials needed by the Czech economy and ensure stable, secure and cost-effective access to them for the sustainable development of the country. The raw materials necessary for the functioning of the Czech economy are derived from three primary sources:

- a) extracted from domestic deposits;
- b) imports from other countries;
- c) secondary sources through recycling or reworking.

In general, within the context of an understanding of the international and European environment, the raw materials policy is formulated in such a way as to sustainably secure the necessary mineral resources for the Czech economy, while at the same time allowing the primary commodity industry to develop as required. The strategy is focused on all raw materials used in Czech economy – energy raw materials, including hard coal/brown coal, crude oil, natural gas and uranium; non-energy raw materials such as

metal ores, industrial minerals such as kaolin, glass and foundry sand, feldspar, bentonites, sand, lime stone, graphite and gypsum; and construction raw materials, including construction stone, aggregate, gravel sand and brick-clay. It also provides an overview of deposits and other potential sources of critical raw materials in the Czech Republic. Special attention is focused on modern minerals needed for high tech industries – rare earth elements, beryllium, gallium, indium, lithium etc. The Raw Materials Policy was developed from the European list of critical raw materials, but with additional focus on the needs of Czech industry. Not all EU critical raw materials have deposits in the Czech Republic, but the Raw Materials Policy is focused on those that are available in the country. In terms of approaches to searching out and using critical raw materials, the preferred method is the reuse of mining waste from slagheaps and tailings ponds, and non-waste treatment technology, for the following reasons:

- access to raw materials;
- lower energy consumption in extracting raw materials;
- synergies from the disposal of environmental burdens while obtaining valuable raw materials;
- the relatively short period of operation prior to extraction;
- comprehensive processing of raw materials.

The document addresses energy raw materials, metallic commodities and industrial minerals, mineral raw materials obtained from domestic sources, imported minerals and minerals obtained from secondary sources through recycling or reworking.

- Security of supply of raw materials – ensuring essential supplies of primary raw materials for consumers and processors from domestic and imported sources, even when there is a change in external conditions – supply shortages, price fluctuations, supply disturbances and external attacks – within the context of the EU.
- Czech Republic collects mining data which are publicly accessible on the Czech Geological Survey's website. Raw materials' export-import data are accessible on the Eurostat website.
- Competitiveness (raw materials industry and social acceptability) – economically acceptable raw material prices for processors and consumers, and non-discriminatory access to the global market in mineral materials. The competitiveness of European industry as a whole largely depends on competitive supplies of raw materials from domestic (European) and foreign (non-European) sources. One of the EU's main priorities is to maintain this competitiveness.
- Sustainability (sustainable development) – the efficient use of domestic raw material resources, sustainable over the long term with no deterioration of environmental quality; financial and economic sustainability particularly of the mining and related sectors and the ability to ensure the necessary investment in recovery and development, including remediation and restoration; human resources, improving technical education; social impacts, ensuring employment while maintaining an emphasis on public information, involvement of the local authorities and education.

The strategy was approved by the government on 14 June 2017<sup>1</sup>.

### **Policies which include elements of material resource efficiency**

#### **Strategic framework Czech Republic 2030**

The main implementation platform of Agenda 2030 is Czech Republic 2030<sup>2</sup>, a strategic framework published by end of April 2017 by the Sustainable Development Unit of the Government Office.

The document sets out goals and targets to be accomplished by 2030 and consists of a detailed development analysis and strategy for sustainable development that should be reflected in all sectoral and

<sup>1</sup> <https://www.mpo.cz/cz/stavebnictvi-a-suroviny/surovinova-politika/statni-surovinova-politika-nerostne-suroviny-v-cr/nova-surovinova-politika-v-oblasti-nerostnych-surovin-a-jejich-zdroju---mpo-2017--229820/> (Czech)

<sup>2</sup> <https://www.cr2030.cz/strategie/dokumenty-ke-stazeni/> (Czech)

regional strategies. It outlines six national priority areas – people and society; economic model; resilient ecosystems; municipalities; global development; and good governance. Another segment of the document consists of an impact analysis of global megatrends on national development.

Among strategic goals of Czech Republic 2030 that should directly contribute to the accomplishment of Agenda 2030 goals and targets is the active participation of the Czech Republic in international organisations based on national priorities, supporting good governance for sustainable development (Sustainable Development Goal (SDG) 16), ensuring policy coherence and mainstreaming Agenda 2030 in both national and foreign policies.

Targets of the Agenda relevant for resource efficiency are:

- 9. Natural resources are used in the most effective and most economical way to minimise externalities caused by their consumption.
  - 9.1 Lower greenhouse gas emissions and demand for high-emission products.
  - 9.2 Increase share of the circular economy in the total volume of material flows.
  - 9.3 Increase the energy and material efficiency of the Czech economy.

Indicators have been developed for sub-targets.

- 9.1 – Tonnes of carbon dioxide equivalent in relation to gross domestic product (GDP).
- 9.2 – Production of secondary raw materials – share of secondary raw materials in amount of materials used.
- 9.3
  - Material intensity – DMC related to GDP
  - GDP energy intensity – energy consumption related to GDP

### **State Environmental Policy:**

The main target of the State Environmental Policy<sup>3</sup> is to secure a healthy and high-quality environment for Czech citizens, significantly increase effective utilisation of all materials and minimise negative impacts of human activities on the environment, including impacts outside the borders of the Czech Republic.

Principles defined by the policy relevant for resource efficiency are:

- waste prevention;
- maximum waste recovery;
- reduce negative impact of waste on the environment;
- support substitution of primary raw materials through waste recovery.

Specific targets defined by the policy relevant for resource efficiency are:

- prevent waste generation – targets are the same as targets in the Czech Waste Prevention Programme;
- increase energy and material utilisation of waste – targets are the same as targets in the Czech Waste Management Plan;
- lower the landfilling rate – set a landfilling tax as so that options of waste management higher up the waste hierarchy are economically competitive with landfilling. In the new Waste Management Act the fee proposed is CZK 1850 (c. EUR 72) per tonne in 2029 for usable waste.

### **The Secondary Raw Materials Policy of the Czech Republic for period 2019–2022**

The document was prepared to create a coherent strategy for the next 20 years, setting out strategic goals for the extraction, processing and use of secondary raw materials from domestic and foreign sources – imported products. Given the dynamic growth of the market in secondary raw materials, the Czech

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<sup>3</sup> [https://www.mzp.cz/C1257458002F0DC7/cz/statni\\_politika\\_zivotniho\\_prostredi/\\$FILE/SOPSPZ-Aktualizace\\_SPZP\\_2012-2020-20161123.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/statni_politika_zivotniho_prostredi/$FILE/SOPSPZ-Aktualizace_SPZP_2012-2020-20161123.pdf) (Czech)

Secondary Raw Materials Policy will be continuously updated as needed and an assessment of the measures laid down will be carried out every four years.

Notification of the concept of “The Secondary Raw Materials Policy of the Czech Republic for the Period 2019 – 2022 (PDS CR)” was subject to a screening procedure pursuant to Act No. 100/2001 Coll., on Environmental Impact Assessment and on amendment of some related Acts (Environmental Impact Assessment Act). Based on the announcement of the concept, written observations of the authorities concerned, the local authorities concerned, the public and the criteria laid down by law, the competent authority (Ministry of the Environment) issued a conclusion of the inquiry procedure, stating that the concept will have no significant impact on the environment and public health and will therefore not be assessed under the Environmental Impact Assessment Act. The document will be submitted to the government for approval at the beginning of the second half of 2019. The main objective of the document is to continue the trend of increasing the share of the returned raw materials in the total consumption of raw materials within the Czech economy. The value of this indicator, the so-called "Circular Material Use Rate" (CMU) defined by Eurostat, grew from 6.9 % to 7.6 % in the Czech Republic between 2014 and 2016, but the Czech Republic is still below the EU average.

The updated PDS CR sets out 19 new tasks aimed at creating favourable conditions for business entities in connection with the Czech Republic's transition to a new economic system of the economy. The tasks are being carried out for the period 2019–2022 with a focus on the support of innovative technologies as tools for reducing the material and energy intensity of industrial production, solutions for the eco design of materials, industrial symbiosis and other related areas. Among the most important tasks are also drafts of legislation setting out criteria for the fulfilment of which will not be considered as waste but as by-products or non-waste, proposals for tax support for products made from secondary raw materials and recycled materials, processing of a catalogue of products containing secondary raw materials, etc. At the same time, it suggests continuing support for education in the field of the circular economy as a necessary component to ensure the realisation of new directions and changes in industry, the service sector and the entire economy and accepting these changes for the civil and professional public. Evaluation and updating of PDS CR will be submitted to the Czech government every four years.

In order to support the building of a resource-efficient infrastructure, a specific programme is being developed in the OP PIK to support innovative technologies to obtain the processing and utilisation of secondary raw materials to replace primary raw materials and produce final products containing secondary raw materials. There were already three calls with an aggregate amount of support of about CZK 350 million. In 2019, the fourth call was announced with an allocation of CZK 500 million.

### **The main vision of the Secondary Raw Materials Policy**

Sustainable use of resources – the basis for circular economy.

### **Strategic objectives of the Secondary Raw Materials Policy**

1. To increase the self-sufficiency of the Czech Republic in raw materials by replacing primary sources with secondary raw materials.
2. Promote innovation and the development of a circular economy within businesses.
3. Promote the use of secondary raw materials as a tool for reducing the material and energy intensity of industrial production.
4. Promote education in the field of the circular economy.
5. Update statistical surveys in the field of secondary raw materials for monitoring and evaluation of the circular economy.

Based on previous analyses, 10 commodities and sources of secondary raw materials were selected for the Secondary Raw Materials Policy. The selection was influenced by the importance of secondary raw materials as inputs for manufacture, mass production, and the need for and potential use of these commodities in the Czech Republic; their significance in terms of exports; etc. The following commodities

were included: metals, paper, plastics, glass, construction and demolition materials, energy by-products, end-of-life vehicles (ELVs), waste electrical and electronic equipment (WEEE), used tyres and waste rubber, and waste batteries and accumulators. The selection of secondary raw materials was based on industrial demand, the need to use the largest volumes of waste, and the need to replace primary sources with secondary raw materials the Czech Republic imports the majority of its raw material needs.

The Secondary Raw Materials Policy is an open document. It is expected to be updated to include additional secondary raw-material commodities, such as unused materials and raw materials from the mining industry and others, which are becoming an important resource for the Czech, EU and world economies.

Secondary raw materials are also covered by Czech Waste Management Plan and Waste Prevention Programme. The difference between the two documents is that they set strategy differently for waste prevention, preparation for re-use, production of materials for recycling, energy recovery and disposal.

Secondary raw materials policy is a separate part of the Czech Raw Materials Policy. It sets targets for the support of the processing industry in the acquisition, processing and utilisation of secondary raw materials. The substitution of primary resources is a basic prerequisite for the successful management of the Czech Republic's transition to a circular economy. The Czech Raw Materials Policy and its resources, together with its Secondary Raw Materials Policy, create favourable conditions for ensuring a sufficient raw material base for Czech industry. Secondary raw materials extracted from end-of-life products must meet standards set for input raw materials for production processes.

The Evaluation of the Action Plan for the Implementation of the Secondary Raw Materials Policy of the Czech Republic for the period 2017–2018 provides a complete and detailed overview of whether 14 tasks have been fulfilled, 10 have been fulfilled and four are ongoing.

The most successful are as follows.

1. Within the OP PIK Programme (Operational Programme Enterprise for Innovation and Competitiveness), which is focused on innovative technologies for the acquisition and utilisation of secondary raw materials. Three calls were announced with support of approximately CZK 350 million, but owing to over-demand a further call increased the total support to CZK 500 million, thus contributing to the development of infrastructure for the use of secondary raw materials and recycled materials.
2. A catalogue of products and materials containing secondary raw materials for use in construction has been produced for use by project offices, construction companies, manufacturers and suppliers of construction materials, and municipalities and cities for public procurement as well as by citizens. The catalogue contains a list of products and the companies that supply them, as well as an overview of legislation, certificates, etc. It was published in February 2019 on the Czech Agency for Standardization's website and will be published in printed form.
3. A draft decree on the criteria by which bituminous mixture can be considered as a by-product rather than a waste, simplifying the use of milled asphalt mixtures and their re-incorporation into the body of the road. The anticipated date of entry into force of the Decree is May 2019.
4. Education for the circular economy by means of the third annual Turning Waste into Resources competition, with the application deadline of 31 March 2019. The first competition attracted 127 entities from manufacturing enterprises, construction companies, municipalities and training facilities and the second attracted 171 entrants. The high level of the winners' and other projects have brought very lucrative foreign contracts.
5. Education about the circular economy has been integrated into primary and secondary school programmes through approximately 20 new projects and subjects.

The substitution of secondary raw materials is a basic prerequisite for the successful management of the Czech Republic's transition to a circulatory economy from a linear system that produces a significant amount of waste, because the extraction of secondary raw materials is cheaper than the extraction or importation of natural resources and reduces impacts on the environment and human health. The evaluation of the Action Plan was approved by Government Resolution No. 73 of 28 January 2019.

### **Waste Management Plan**

The Waste Management Plan<sup>4</sup> was established in 2014 by government decision. The main strategic priorities are:

- prevention and reduction of specific waste production;
- minimising of adverse effects of waste generation and waste management on human health and the environment;
- sustainable development and moving closer towards the European vision of a recycling society;
- maximum utilisation of waste as a substitute for primary sources in the transition to a circular economy.

To achieve the strategic priorities the following measures have been established.

- a) Prevent waste through the fulfilment of the Waste Prevention Programme and other measures to promote reduction of waste.
- b) Apply the waste management hierarchy in waste management. Manage waste according to the following ranking: prevention, preparation for re-use, recycling, other recovery such as energy recovery, and lastly, (safe) disposal that complies with all requirements, laws, standards and rules to ensure the protection human health and the environment. In applying the hierarchy, support the options that deliver the best overall result from an environmental perspective. Take into account the entire life cycle of products and materials and focus on reducing the impact of waste disposal on the environment.
- c) Support waste management methods which use waste as a source of raw materials, replacing primary natural resources.
- d) Support waste management leading to the increased utilisation of waste.
- e) Support preparing for re-use and recycling.
- f) Do not support landfilling or incineration of recyclable materials.
- g) For specific waste streams, a deviation may be allowed from the established waste management hierarchy if it can be justified by taking the total life cycle impact of this waste and its management into account.
- h) In applying the hierarchy, reflect the precautionary principle and prevent the adverse impacts of waste management on human health and the environment.
- i) In applying the hierarchy, reflect the principle of sustainability, including technical feasibility and economic sustainability.
- j) In applying the hierarchy, ensure the protection of raw materials resources, the environment and human health with due regard to economic and social impacts.
- k) The individual types of waste management in the Czech Republic must create an integrated complex which guarantees minimum negative impacts on the environment and high levels of protection of human health.

### **Waste Prevention Programme**

The Waste Prevention Programme was established in 2014 by government decision, with the following main priorities.

- Information support for waste prevention issues.

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<sup>4</sup> [https://www.mzp.cz/C1257458002F0DC7/cz/plan\\_odpadoveho\\_hospodarstvi\\_aj/\\$FILE/OODP-WMP\\_CZ\\_translation-20151008.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/plan_odpadoveho_hospodarstvi_aj/$FILE/OODP-WMP_CZ_translation-20151008.pdf) (English)



- Create conditions and set incentives for lowering material and energy consumption in manufacturing.
- Support of low-waste and innovative technologies.
- Pay maximum attention to food waste and create conditions conducive to its gradual reduction at all levels of the food cycle.
- Promote the utilisation of service and charity centres and other organisations to extend the life and re-use potential of products and materials.
- Enhance the active role of research, experimental development work and innovation.

#### **Initiative Industry 4.0**

At its meeting on 24 August 2016, the government approved Initiative Industry 4.0<sup>5</sup>, a document submitted by the Ministry of Industry and Trade.

The long-term goal of the Initiative is to maintain and enhance Czech competitiveness at the time/mass onset of the so-called Fourth Industrial Revolution.

The Initiative includes measures to promote investment and standardisation as well as applied research, and deals with issues related to cyber security, logistics and normalisation.

The Czech Republic is a country with a long industrial tradition and its ambition for its future to remain tied to industry. The Fourth Industrial Revolution brings with it a number of challenges, but above all it provides a unique opportunity to ensure the long-term global competitiveness of the Czech Republic. We live in a unique time and our ability to take advantage of this opportunity will have an impact on the quality of life of current and future generations.

Industry 4.0 is a strategic concept describing options brought by using new technologies in industry. Such technologies will:

- allow faster reaction to consumer demands by enterprises;
- increase flexibility, productivity and quality of manufacturing processes;
- create conditions for new business models and manufacturing processes.

Because of these improvements, it will be possible to:

- reach new levels of mass production with respect to individual needs of customers;
- lower demand for energy and primary resources in manufacture processes;
- allow optimal use of residual materials as inputs to manufacturing processes;
- increase use of wastes which cannot be recycled in producers' facilities;
- optimise logistical routes, increase transport performance;
- establish new technological solutions for decentralised systems of energy production and distribution, and smart municipal infrastructure.

In October 2018, the Czech Government approved the Digital Czechia programme, which consists of three pillars, the first being e-Government, the second the Czech Republic in Digital Europe, and the third the Digital Economy and Society. The Industry 4.0 concept, part of Alliance 4.0, has become an integral part of the Digital Economy and Society. Priorities cover a wide range of activities, the most important being investment in qualified human resources, support for technology-intensive research and development programmes, and high-tech manufacturing and services.

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<sup>5</sup> <https://www.mpo.cz/en/industry/industry-4-0/initiative-industry-4-0-approved-by-the-czech-government--177195/> (English)



### **Institutional setup and stakeholder engagement**

The Ministry of Industry and Trade coordinates policies in area of resource efficiency including energy efficiency, and primary and secondary raw materials. The Ministry of the Environment is responsible for circular economy and waste management policies, and for the reduction of environmental risks, for example through supporting recycling. Both ministries collaborate on resource efficiency, for example on the preparation of secondary raw materials policy. The Ministry of the Environment will be in charge of the preparation of a strategy for the circular economy, Circular Czechia. The Ministry of Industry and Trade and other relevant ministries will cooperate with Ministry of the Environment on this.

During preparation of new legislative documents and conceptual materials, proposals go through an inter-departmental consultative procedure in which a variety stakeholders are involved. In addition to state institutions, employer associations, non-governmental organisations (NGOs) and other important organisations can be involved in the discussions.

For important issues such as the Secondary Raw Materials Policy, the State Raw Materials Policy or the Waste Management Plan there must be also a Strategic Environmental Assessment process. Part of this is a public hearing, in which everyone can comment. At the governmental level, there are working groups, through which non-ministerial members can comment to influence the policy or proposed legislation, such as the Waste Management Council, the Government Council for the Energy and Raw Materials Strategy and others concerned with specific areas.

### **Approaches to resource efficiency and circular economy policy evaluation**

Conceptual and strategic documents, which are published as legislative documents, for example by a government regulation, must undergo a regulation impact assessment (RIA). This process evaluates complex impacts on economics, competitiveness, the social sphere, the environment, etc. Other documents must undergo strategic impact assessments.

In case of the Czech Waste Management Plan, an *ex-post* assessment is carried out every two years, performed by the Ministry of the Environment. As part of these evaluations, the ministry assesses the waste management system in the Czech Republic, the management of municipal waste, of mixed municipal waste, biodegradable waste, the management of packaging waste, hazardous and other waste, construction waste, end-of-life products and of other types of waste. The system of separate collection and management of waste with materially recoverable components is also assessed.

As part of this evaluation, the capacity of the waste management and the end-of-life product systems is assessed, and measures suggested for its improvement. The network of facilities for waste management in the Czech Republic is also evaluated. The fulfilment of the objectives and measures of the Waste Prevention Programme, which is part of the Waste Management Plan, is also assessed<sup>6</sup>.

#### **Secondary Raw Materials Policy**

A report on the achievement of the objectives and measures stipulated in the Secondary Raw Materials Policy is submitted to the Czech Government for approval every four years. The report contains a detailed description of how targets were set and provisions fulfilled. The measures set out to meet the strategic objectives are part of the document.

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<sup>6</sup> [https://www.mzp.cz/cz/plneni\\_narizeni\\_vlady](https://www.mzp.cz/cz/plneni_narizeni_vlady) (Czech)  
[https://www.mzp.cz/C1257458002F0DC7/cz/predchazeni\\_vzniku\\_odpadu\\_navrh/\\$FILE/OODP-PPVO\\_prubezna\\_hodnotici\\_zprava-20171006.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/predchazeni_vzniku_odpadu_navrh/$FILE/OODP-PPVO_prubezna_hodnotici_zprava-20171006.pdf) (Czech)

## Monitoring and targets

### Targets for resource efficiency and circular economy

#### Targets in field of waste management

**Landfilling ban** – Act No. 185/200 on waste established in § 21 bans the landfilling of recoverable and utilisable waste and municipal solid waste after 2024. The measure will divert the wastes to material or energy recovery and thus promote resource efficiency. A new waste act is currently in preparation. The timeline for the landfilling ban will be moved to 2030.

#### Targets for waste tyres

- Increase separate collection of waste tyres – 80 per cent in 2020.
- Achieve high recovery rates in the processing of waste tyres – 100 per cent in 2016. In 2016, 96 per cent of recovery of waste tyres was achieved.

#### Targets for packaging waste

In 2017, new targets for packaging waste were established through Act No. 477/2001 Coll.

Packaging waste	By 31 Dec, 2016		By 31 Dec, 2017		By 31 Dec, 2018		By 31 Dec, 2019		By 1 Jan, 2020	
	A	B	A	B	A	B	A	B	A	B
	%	%	%	%	%	%	%	%	%	%
Paper and cardboard	75		75		75		75		75	
Glass	75		75		75		75		75	
Plastic	45		45		45		45		50	
Metal	55		55		55		55		55	
Wood	15		15		15		15		15	
Consumer packaging	40	45	44	49	46	51	48	53	50	55
Total	60	65	65	70	65	70	65	70	70	75

A: recycling B: overall recovery

### Indicators to monitor progress towards a resource-efficient circular economy

#### Targets in field of waste management

In field of waste management, a set of binding targets was established in the Czech Waste Management Plan. Some of the targets also promote resource efficiency, such as recycling targets for municipal solid waste, packaging, WEEE, waste tyres, construction and demolition waste, batteries, ELVs and landfilling of biowaste.

All the quantitative targets have indicators which were established from data gathered in yearly reporting on waste. Results are published every year on the Ministry of the Environment website and in the Environmental Yearbook.

- Waste management indicators
- Production and treatment of waste
- Production of waste in regions of the Czech Republic<sup>7</sup>
- Waste management data summary<sup>8</sup>
- Environmental yearbook<sup>9</sup>

<sup>7</sup> [https://www.mzp.cz/cz/produkce\\_odpadu\\_v\\_cr](https://www.mzp.cz/cz/produkce_odpadu_v_cr) (Czech)

<sup>8</sup> [https://www.mzp.cz/cz/odpadove\\_hospodarstv%C3%AD\\_data\\_2015](https://www.mzp.cz/cz/odpadove_hospodarstv%C3%AD_data_2015) (Czech)

<sup>9</sup> [https://www.mzp.cz/cz/statisticka\\_rocenka\\_zivotniho\\_prostredi\\_publikace](https://www.mzp.cz/cz/statisticka_rocenka_zivotniho_prostredi_publikace) (Czech)

### Strategy for transition to Circular Economy (Circular Czechia)

A strategy for the transition to a circular economy is currently being prepared in the Czech Republic. Indicators for the transition will be part of the strategy.

### Secondary raw materials – Circular materials use rate (CMU)<sup>10</sup>

#### Resource efficiency, circular economy and the 2030 Sustainable Development Goals

In field of waste management, all initiatives that have been taken are mentioned in the Czech Waste Management Plan or the Waste Prevention Programme and Waste Act. In field of resource efficiency, all initiatives are mentioned in the Czech Secondary Raw Materials Policy and the Raw Material Policy in the Field of Mineral Materials and their Resources. See sections: Overview of dedicated national or sectoral strategies for raw materials; Policies which include elements of material resource efficiency; and Targets for resource efficiency and circular economy.

### Examples of innovative approaches and good practice

#### Resource efficiency, circular economy and the 2030 Sustainable Development Goals

##### State Programme of Environmental Education and Consultancy 2016–2025<sup>11</sup>

The programme is a key national strategy in field of environmental education and consultancy with visions, targets and measures, to be carried out by the state, regional governments, municipalities, schools, universities, centres of environmental education, NGOs, educational and research institutes, museums, zoos, botanical gardens, public libraries, etc.

Target 5.4 Sustainable Consumption, and more concretely Measure 5.4.3, specifies support for education and consultancy for manufacturers and public administrations on waste prevention and utilisation of recycled materials.

##### Ministry of the Environment project: Search of new ways of informational support for the realization of the Waste Prevention Programme

The project's target is to ensure methodical and informational support for waste prevention including drawing up a methodology for education; a procedure of contracting voluntary agreements; and methodologies for the systematic support of activities of the Ministry of the Environment and other cooperating state institution in field of waste prevention. The project ran for 2016 and the beginning of 2017.

##### Project outcomes<sup>12</sup>:

- Methodologies:
  - voluntary agreement contracting;
  - incorporating of waste prevention into school and after-school education;
  - systematic support of activities of the Ministry of the Environment and other cooperating state institution in field of waste prevention.
- Workshops:
  - waste prevention in the construction sector;
  - waste prevention in school and after-school education;
  - support of waste prevention in activities of public administration;

<sup>10</sup> [https://www.mpo.cz/assets/cz/prumysl/politika-druhotnych-surovin-cr/2019/1/IV\\_Politika-druhotnych-surovin-CR.pdf](https://www.mpo.cz/assets/cz/prumysl/politika-druhotnych-surovin-cr/2019/1/IV_Politika-druhotnych-surovin-CR.pdf)

<sup>11</sup> [https://www.mzp.cz/cz/statni\\_program\\_evvo\\_ep\\_2016\\_2025](https://www.mzp.cz/cz/statni_program_evvo_ep_2016_2025) (Czech)

<sup>12</sup> available at: [https://www.mzp.cz/cz/program\\_predchazeni\\_vzniku\\_odpadu](https://www.mzp.cz/cz/program_predchazeni_vzniku_odpadu) (Czech)

- waste prevention in the hotel industry.
- Handbooks:
  - handbook for municipalities;
  - handbook for stakeholders in the hotel industry;
  - handbook for producers of construction materials, designers, investors, construction companies – guidebook on construction waste prevention;
  - guidebook on waste prevention in the hotel industry.
- Citizen handbooks:
  - flyer on food waste – Food is precious;
  - flyer on packaging – Package age;
  - flyer on WEEE – Electro pets;
  - flyer on textiles – Rags ballade;
  - flyer on household furniture – Who has a chair, has a home.

### **Programme TRIO**

Ministry of Industry and Trade of the Czech Republic is currently implementing a programme called TRIO which supports applied research and experimental development for industrial production. Is financed from the national budget.

The programme is focused on the development potential of the Czech Republic in the area of key enabling technologies (KETs). The programme is also focused on increasing the applicability of the results of research and development (R&D) for KETs in business sector. One of the objectives of the programme is to strengthen effective R&D cooperation between businesses and research organisations, so only projects solved in this cooperation are supported.

The Ministry of Industry and Trade, through public tenders, supports research, experimental development and innovation in all industries, including in the area of secondary raw materials.

Examples of research and innovation projects funded by the Ministry of Industry and Trade in field of resource efficiency:

- effective use of brick recycle;
- research and development of new materials for floor construction using secondary raw materials;
- advanced technology for concrete production with share of secondary raw materials and more effective use of natural resources;
- use of heat station slag in concrete production;
- development of continual process of obtaining fatty acid methyl esters from waste fat and waste vegetable oil;
- advanced technology for concrete production based on industrial wastes.

### **Programme THETA**

The THETA programme<sup>13</sup> supporting applied research, experimental development and innovation was prepared by the Technology Agency of the Czech Republic in close cooperation the Ministry of Industry and Trade, the State Office for Nuclear Safety, the Energy Regulatory Office, the Ministry of Education, Youth and Sport, the Ministry of the Environment and other stakeholders and approved by Czech Government Resolution No.1 173 on the 19 December 2016.

The aim of the programme is to contribute in the medium and long term to fulfilling the vision of transformation and modernization of the energy sector in accordance with the approved strategic materials through the outputs, results and impacts of the supported projects. The programme is divided to three sub-programmes with a focus on supporting projects in the public interest, new technologies and

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<sup>13</sup> <https://www.tacr.cz/index.php/en/programmes/theta-programme.html> (English)

systemic components with a high potential for rapid application in practice and long-term technological perspectives. Under this programme, it is possible to support projects in the fields of energy efficiency, smart grids, renewable energy sources, emissions of pollutants, clean mobility and so on.

### **Operational Programme Environment 2014–2020**

In the Operational Programme Environment 2014–2020, priority axis 3 Waste is focused on resource efficiency – particularly specific targets 3. 1: Waste prevention and 3.2: Increase the share of material and energy recovery from waste. The Ministry of the Environment and the State Environmental Fund are responsible for the administration of the Operational Programme Environment.

#### **Specific target 3.1 – Waste prevention**

- Activity 3.1.1 – Municipal waste prevention.
- Activity 3.1.2 – Industrial waste prevention.
- Examples of supported projects:
  - support for or modernisation of technologies which lower the amount of waste produced per unit of production;
  - building of municipal waste prevention points such as those for used furniture, clothes, biowaste, etc.

#### **Specific target 3.2 – Increase the share of material and energy recovery from waste**

Supported activities:

- construction and modernisation of facilities for collection, sorting and treatment of waste;
- construction and modernisation of facilities for material utilisation of waste;
- construction and modernisation of facilities for energy recovery from waste.

Examples of supported projects:

- construction and modernisation of facilities for the collection, separation and treatment of waste;
- extension of systems for separated collection, storage and manipulation of waste;
- construction and modernisation of civic amenity sites;
- sorting facilities securing production of good quality secondary raw materials and facilities with follow-up technologies for waste treatment;
- building of systems for separated collection of biowaste;
- construction of composting plants with utilisation of compost produced in agriculture;
- construction of systems for collection of food waste;
- extension of systems for end-of-life product collection;
- construction and modernisation of facilities for material recovery;
- technologies for utilisation of construction elements from insulation systems such as construction polystyrene, polyvinyl chloride (PVC) construction elements;
- construction or modernisation of waste-to-energy and co-incineration facilities;
- construction of biogas stations.

### **Operational programme Enterprise and Innovation for Competitiveness 2014–2020**

The operational programme Enterprise and Innovation for Competitiveness 2014–2020<sup>14</sup> supports activities to develop a competitive and sustainable economy based on knowledge and innovation.

In field of resource efficiency, priority axis 3: Efficient energy management, development of energy infrastructure and renewable energy sources, support for the introduction of new technologies in the management of energy and secondary raw materials is relevant (particularly specific target 3.4: low carbon technologies).

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<sup>14</sup> <https://www.mpo.cz/cz/podnikani/dotace-a-podpora-podnikani/oppik-2014-2020/kopie-1-vyzvy-op-pik-cerven-2017--230279/> (Czech)

Supported activities under the specific target mentioned are:

- secondary raw materials:
  - implementing of technologies to produce secondary raw materials of suitable quality for industrial production from, for example, used paper, glass, metals, tyres, textiles, plastics, construction and demolition waste, by-products of the energy industry;
  - implementing new technologies for effective production of secondary raw materials from used products;
  - implementing of new technologies for the production innovative products made from secondary raw materials, including the replacement raw materials by secondary raw materials where it is economically profitable.

### **Czech Circular Economy Association**

The Czech Circular Economy Association (ČAOBH)<sup>15</sup> is a non-political group of citizens and corporations, which aim is to promote and apply circular economy principles, and thus contribute to savings of primary resources and reduction of negative impacts on the environment and human health. The association is active in a field of education and awareness raising as well as in a process of preparation of a new legislation on waste and resources.

### **National Competition Waste Conversion to Resources<sup>16</sup>**

The competition is organised by the Ministry of Industry and Trade in cooperation with other ministries and industry associations and associations.

- The aim of the competition is education in the field of circular economy. Provide examples of good practice and information on a circular economy, resource efficiency, and the substitution of primary raw materials by the production of secondary raw materials.
- Provide information on the principles of the circular economy and its benefits to professional and the civil society;
- The competition is divided into following categories: manufacturing enterprises; construction companies; public administration (mainly municipalities); and educational institutions – primary and secondary schools, universities and other educational institutions. Winning projects demonstrate smart resource management and efficient use, resulting in savings in primary resources, reduced material production and a positive impact on human health and the environment.
- Announcement of winners of the competition took place on 15 June 2017 in the Senate of the Parliament of the Czech Republic.

In 2018, the Ministry of Industry and Trade organised the second competition, in which a seventh category, video projects, was added. This year, a large number of contestants participated, especially manufacturing companies and university students. Announcement of winners took place on 15 June 2018 in the Senate of the Parliament of the Czech Republic<sup>17</sup>.

In 2019, the Ministry of Industry and Trade organised the third year of this competition. The winners' announcement was held on 6 June 2019.

Winners of the competition, especially manufacturing companies, construction companies and municipalities and cities, are invited to conferences and seminars where they present their winning projects and products.

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<sup>15</sup> [www.caobh.cz](http://www.caobh.cz) (Czech)

<sup>16</sup> <https://www.mpo.cz/cz/prumysl/politika-druhotnych-surovin-cr/vyhlaseni-vysledku-souteze-mpo-premena-odpadu-na-zdroje---1--rocnik--229586/> (Czech)

<sup>17</sup> <https://www.mpo.cz/cz/prumysl/politika-druhotnych-surovin-cr/vyhlaseni-vysledku-souteze-mpo-premena-odpadu-na-zdroje---2--rocnik--238044/> (Czech)

### Enough Plastics Initiative

This initiative of Ministry of Environment is focused on voluntary agreements with fast food chains, retail chains, cafes, public events organizers, etc. to make them avoid using single use plastics (cups, plates, bags, straws, etc.).

### Seeking synergies with other policy areas

The Czech Republic has put some initiatives in place that deliberately seek to create synergies and co-benefits between resource efficiency, the circular economy, and other policy areas. The initiatives mentioned below deal respectively with energy supply and efficiency, climate protection, renewable energy and regional development.

### State Energy Concept of the Czech Republic

The main mission of the State Energy Concept<sup>18</sup> is to ensure reliable, safe and environmentally-friendly energy supplies to meet the needs of the Czech population and its economy, at competitive and affordable prices and under standard conditions. At the same time, it aims to secure the uninterrupted supply of energy in crisis situations to the extent necessary to ensure the functioning of the most important components of the state and the survival of the Czech population. Finally, its objective is also to ensure a stable and predictable business environment, efficient government and an adequate and secure energy infrastructure.

The State Energy Concept identifies five strategic priorities, which are intended to contribute to meeting the main objectives. These priorities include:

- a balanced mix of primary energy and power generation sources based on a broad portfolio, effective utilisation of all available domestic energy resources, maintaining a surplus output balance in the electrical power system with sufficient reserves and maintaining accessible strategic reserves of domestic forms of energy;
- increasing the energy efficiency of the national economy;
- developing the network infrastructure of the Czech Republic within the context of central European states, increasing international cooperation and the integration of electricity and gas markets in the region, including support for the establishment of an effective and functional common energy policy for the EU; support for research, development and innovation to ensure that the Czech energy sector remains competitive; and support for education, aiming to ensure that knowledge is handed down to the next generation and to improve the quality of technical knowledge in the energy sector; and
- to improve the energy security and resilience of the Czech Republic and strengthen its ability to ensure essential energy supplies in the event of failures, multiple attacks on critical infrastructure and in cases of prolonged periods without fuel supplies.

State Energy Concept defines corridors for the sharing of renewable and secondary sources in the mix of electricity generation and in the mix of primary energy sources, and also determines priorities and goals for the maximisation of the energy utilisation of waste, respecting the waste management hierarchy, and secondary sources or priorities and goals for the reduction of the waste landfilling.

### Draft of the National Energy and Climate Plan of the Czech Republic

The Draft of the National Energy and Climate Plan of the Czech Republic<sup>19</sup> has been prepared in accordance with the State Energy Concept of the Czech Republic and with the Climate Protection Policy of the Czech Republic on the request of the Article 9 of the Regulation (EU) 2018/1999 of the European Parliament and

<sup>18</sup> <http://www.mpo.cz/dokument158059.html> (Czech version) and <https://www.mpo.cz/dokument161030.html> (English version)

<sup>19</sup> <https://www.mpo.cz/cz/energetika/strategicke-a-koncepcni-dokumenty/navrh-vnitrostatniho-planu-v-oblasti-energetiky-a-klimatu-ceske-republiky--243377/> (Czech and English)



of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action and it has been submitted to European Commission. Following the iterative process with European Commission and also the other requirements, such as regional consultation and public consultation, the document will be finalised, approved by the government of the Czech Republic and submitted to the European Commission by the end of 2019.

The draft contains objectives and main policies in all five dimensions of the Energy Union including decarbonisation, energy efficiency, energy security, internal energy market and also research, innovation and competitiveness. Through this integration of national plans, Member States are also required to inform the European Commission about the national contribution to the agreed European targets for greenhouse gas emissions, renewable energy sources, energy efficiency and interconnectivity of the electricity system.

### **National Renewable Energy Action Plan of the Czech Republic**

The National Renewable Energy Action Plan<sup>20</sup> has been prepared in accordance with the Czech State Energy Concept to comply with, and slightly exceed, the targets set for the Czech Republic in the Directive for the Use of Energy from Renewable Sources in 2020. The Plan will act as a regulator for the operational support of the generation of energy from renewable energy sources, following on from Act No. 165/2012 Coll. on subsidised energy sources. The National Renewable Energy Action Plan also includes a part concerning energy from biomass (part 4.6, pp. 74 to 83).

The updated National Renewable Energy Action Plan assumes that energy from renewable sources will represent a 15.3 per cent of gross final energy consumption by 2020 and 10 per cent of gross final consumption of energy in transport.

The binding target for the share of energy from renewable sources in the gross final consumption of energy in 2020, as set out in Directive 2009/28/EC, is 13 per cent.

The actual share of energy from renewable sources in gross final consumption was 14.98 per cent in 2014, 14.99 per cent in 2015, 14.89 per cent in 2016 and 14.76 per cent in 2017.

At present, a draft National Energy and Climate Plan has been drawn up on the basis of the Commission's Regulation 2018/1999 on the governance of the Energy Union and Climate Action. This draft plan estimates that the share of energy from renewable sources in gross final energy consumption will be 20.8 per cent in 2030.

### **Strategy for Regional Development of the Czech Republic 2014–2020**

The main target of the strategy is local level support for the preservation and sustainable use of land; preservation of drinking water sources; prevention of waste generation and its negative impact on environment; effective and sustainable utilisation of renewable energy sources, especially small local sources; preservation and amelioration of water conditions; and the lowering air pollution and greenhouse gas emissions.

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<sup>20</sup> <https://www.mpo.cz/cz/energetika/elektroenergetika/obnovitelne-zdroje/narodni-akcni-plan-pro-obnovitelne-zdroje-energie--169894/> (Czech)  
<https://www.mpo.cz/cz/energetika/statistika/obnovitelne-zdroje-energie/vyvoj-podilu-obnovitelne-energie--235054/> (Czech)  
<https://www.mpo.cz/assets/cz/energetika/statistika/obnovitelne-zdroje-energie/2018/12/SHARES-2010-17.pdf> (Czech)

- **Measures targeting resource efficiency<sup>21</sup>:**

6.2: Lowering of municipal solid waste production and support of material utilisation

*This aims to lower municipal waste production, support waste prevention especially innovative approaches to waste material utilisation and support for waste management technologies. The measure particularly focuses on municipalities (villages, municipalities in difficult terrain, etc.).*

### Resource efficiency and circular economy policy initiatives from subnational to local level

Numerous subnational and local initiatives are being implemented in the Czech Republic, to contribute to a range of sectors. Among these are:

#### **Re-use management: the city of Brno project for re-use of end-of-life products – RE-USE, SECOND LIFE**

- The pilot phase of the Re-use, second life project started in summer 2016. It is run by the Department for the Environment of Brno city, technical services of Brno city and the company running a waste-to-energy plant in Brno, SAKO Brno, a.s. Citizens can donate their used products – furniture, toys, sport equipment etc. – at four collection yards for reuse.
- In April 2016 the city of Brno started another project, RE-NABon, to encourage the citizens of Brno to give used furniture to socially disadvantaged people. The furniture is collected at four yards, transported to a central point where is sorted, registered and from where is distributed to people in need.
- Other reuse centre projects are in different stages of preparation in the city of Olomouc, Nová Lída, Mořinka, Karlovy Vary, Hutisko-Solanec, Příbor, Heřmanův Městec, and the Vysokomýtsko micro region.

#### **Waste Electrical and Electronic Equipment**

##### **Recyklohraní – Tidy up the World**

- The project's target is to deepen students' knowledge of sorting and recycling and provide them with personal experience in the take-back of batteries and small electronic equipment. The project is run by the Ministry of Education, Youth and Sport, with additional financial support provided by ASEKOL, ECOBATand ELEKTROWIN, companies that specialise in take-backs and recycling.

##### **I am back**

- The I am back project started in 2015 with a focus on the re-use of functional electronic devices from take-backs. After a check by specialised technicians, devices are (re)distributed to socially beneficial organisations such as shelters for homeless people.

##### **Give a mobile**

- This project focuses on the collection of end-of-life mobile phones. Those that are still functional are given to organisations where can be used.

##### **WANTED**

- This pilot project is carried out at collection yards in Prague and six other Czech cities. Since September 2016, citizens can donate their old but functional electronic devices (vacuum cleaners, electronic toys, notebooks, etc.) which are then donated to the needy.

#### **Waste textiles**

##### **ReShare**

- Main target of this project is to build social enterprises focused on the utilisation and selling of items donated by companies and individuals. The project is focused on the collection of worn-out textiles and shoes, furniture and electronic devices.

<sup>21</sup> <https://www.mmr.cz/getmedia/08e2e8d8-4c18-4e15-a7e2-0fa481336016/SRR-2014-2020.pdf> (Czech)

### **Diakonie Broumov**

- Diakonie Broumov has about 400 containers for the collection of used clothes. For example, in Prague they have about 190 containers to which inhabitants of Prague gave about 1,000 tonnes of used textiles, shoes, toys etc. Ninety-eight per cent of collected clothes is in given to people in need.

### **Food waste**

#### **Menu for homeless people**

- Through this project, run by Centre for Social Services in city of Brno, restaurants and canteens can provide unsold meals for free to homeless people. Unsold meals are redistributed from the municipal Centre of Social Services, and by September 2016, 22,392 meals had been distributed..

### **Crooked vegetables, Perfectly Imperfect and Extraordinary pieces**

- Through these projects, Penny Market, Rohlík.cz. and TESCO sell non-standard shaped and/or sized vegetables. The vegetables are sold in Penny Market and TESCO's supermarkets and in Rohlík.cz's e-shop. The projects are voluntary activities through vegetables that would otherwise be wasted, are used.

### **Packaging**

#### **Zero waste shopping**

- There is a growing number of zero waste/packaging free shops. Customers are encouraged to bring their own packaging; they can also buy re-usable packaging in the shops or use the shops' returnable packaging.
- To support zero waste shopping, technology company MIWA (Minimum Waste) has developed and produces a system that simplifies the distribution and sales of packaging-free goods. It is based on reusable capsules and in-store modular units that provide an effective supply chain and store management. MIWA has won the Circular Design Challenge award for this project.

## **Other resources**

### **Examples of policies which go beyond "material resources"**

#### **Strategy on Adaptation to Climate Change<sup>22</sup>**

The Strategy identifies priority sectors which are assumed to have the greatest vulnerability to or the greatest effect on climate change, including forestry, agriculture, the waste regime and water management, biodiversity, ecosystem services, urbanised landscapes, human health, tourism, traffic, industry and the environment. The Strategy describes the main risks and assumed impacts in the sectors, defines general adaptation principles and defines priorities, shows inter-sectoral connections and provides guidelines and examples of suitable adaptation measures.

The implementation document for the Strategy is the National Action Plan on Adaptation to Climate Change which defines one general and 33 specific targets. The targets are to be achieved by 52 priority measures.

#### **State Programme on the protection of Nature and Landscapes**

The Programme analyses the status of nature and landscapes, and formulates long-term targets and measures.

Targets:

- conserve and ameliorate ecological stability in the Czech Republic;

<sup>22</sup> [https://www.mzp.cz/cz/narodni\\_akcni\\_plan\\_zmena\\_klimatu](https://www.mzp.cz/cz/narodni_akcni_plan_zmena_klimatu) (Czech)

- secure sustainable use of landscapes, mainly by restrictions of build-up areas, protection of and restrictions on further fragmentation;
- secure sufficient management of an optimised network of protected areas;
- increase biodiversity in forests to improve natural species and spatial composition, increase the share of natural restoration of species and genetically suitable stands, and support non-productive functions of forest ecosystems;
- restore natural hydro-ecological functions of landscapes, support the ability of landscapes to resist and adapt to estimated impacts of climate change;
- conserve and increase the biodiversity of water and wetland ecosystems mainly by rehabilitation of water environments and restriction of their further fragmentation;
- evolve ecologically acceptable forms of tourism in mountain regions while retaining landscape character and the natural values of the territory;
- secure protection of land as an irreplaceable unrenovable natural resource, limit the loss of areas of high-quality farmland, decrease the negative impacts of drivers endangering ecosystem services of land ecosystems (productive and ecological functions);
- increase diversity of farmed and neighbouring areas;
- conserve or restore species-rich and morphologically interesting grassland;
- optimise the network of protected areas to cover the most precious elements of nature and landscapes;
- conserve sufficiently abundant and genetically rich populations of original plant and animal species to enable their long-term independent existence. Minimise the introduction of new invasive non-native species and limit the further dissemination of existing invasive species.

### **The State Environmental Policy 2012–2020**

The State Environmental Policy 2012–2020 sets a framework for the effective protection of the Czech environment until 2020.

The Policy's main objectives are to ensure a healthy and high-quality environment for Czech citizens, to significantly contribute to the more effective use of resources and minimise the negative impacts of human activities, including cross-border impacts, and thus contribute to the improvement of quality of life in Europe and globally.

### **River Basin Management Plans, 2010–2015 and 2016–2021**

The River Basin Management Plans (RBMPs) for second cycle were prepared at the following three levels:

- International River Basin Management Plans – for the international river basins: the Danube, Elbe and Oder.
- National River Basin Management Plans – parts of international river basins within the Czech Republic's territory: the Danube, Elbe and Oder.
- River Basin District Management Plans – 10 river basin districts.

The National River Basin Management Plans replaced the Plan of Main River Basins of the Czech Republic, the 10 River Basin District Management Plans and the Eight River Basin District Management Plans. National River Basin Management Plans are produced by the Ministries of Agriculture and the Environment in cooperation with the River Boards, state enterprises and the relevant regional councils. They were approved by the Czech government on 21 December 2015. The River Basin District Management Plans are produced by the relevant River Boards and state enterprises, in cooperation with regional councils and central water authorities. These plans were approved by regional councils according to their local administrative power.

The 2nd River Basin District Management Plans reconsidered and updated goals and programmes of measures to achieve the goals including strategies for financing measures based on an evaluation in the first planning cycle. River Basin District Management Plans filled in National River Basin Management Plans

with detailed data and proposed measures necessary to achieve goals for each district river basin. The measures adopted in the River Basin Management Plans should be implemented within three years after of approval.

### **Air Quality Plans**

Air Quality Plans have been adopted for all zones and agglomerations. They contain air pollution analyses, dispersion studies and identification of main causes of poor air quality in certain regions. They also contain plans and measures for the regional authorities, such as traffic control or additional obligations for operators of industry, beyond the scope of best available techniques (BAT).

### **National Air Pollution Control Programme**

The Czech Republic also has a National Air Pollution Control Programme adopted according to the Art. 6 of the Directive (EU) No 2016/2284 of the European Parliament and the Council on the reduction of national emissions of certain atmospheric pollutants.

## **The way forward**

### **Reflections on future directions of policies on resource efficiency and circular economy**

Resource efficiency and the circular economy are, in view of the Czech Republic, the right direction. There are, however, a two problems to solve.

The first problem is the unification and clarification of definitions, data collection and statistics. Without these, it will be not possible to control meeting the targets or compare one Member State with others.

The other problem, also lightly connected to the targets, concerns the ban on recycling toxic substances such as persistent organic pollutants (POP) contained in otherwise recyclable materials. There are two pieces of EU legislation that are slightly in conflict. One is on circular economy, promoting as much recycling as possible, while the other restricts the use of toxic substances (REACH, POPs regulation) in otherwise recyclable materials. These two pieces of legislation should be harmonised.

In order to support domestic primary energy sources, we count on the use of secondary energy sources in power plants in the Czech Republic.

The secondary raw materials market needs to be intensively promoted by means of, in particular, economic, legislative and information tools.

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