



CIRCULAR ECONOMY POLICY IN ROMANIA

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1 The context of the circular economy in Romania

Europe is actively involved in the transformation of the linear economy into a circular economy, based on innovation, by which to ensure competitiveness with the other economies of the world and to move to the sustainable development solution that takes into account the environment and resources. At the European level, an ambitious circular economy action plan has been approved, which aims to be the engine of the transition to a circular economy [1].

Despite some economic progress in the last decade, Romania is still at the beginning of the transition from a linear to a circular economic model. Romania's economic growth is still not decoupled from waste generation, and waste management lags significantly behind, as landfills and often illegal dumping are still the dominant form of waste management [2].

The performance in terms of circular economy indicators such as resource productivity, eco-innovation, waste generation per gross domestic product, waste treatment and the use of recycled materials in the economy is below the average of EU member states [3].

There is a low level of involvement of Romanian citizens in circular economy activities, such as using sharing schemes, repairing products, avoiding plastic materials and single-use packaging or choosing locally manufactured and/or eco-labeled products.

However, Romania has one of the lowest rates of waste per internal consumption of materials among EU countries and has favorable prospects for improving the country's performance in terms of adopting circular economy practices.

Romania needs to make more improvements in all stages of the circular economy, from greater resource efficiency and the use of secondary materials in production to waste prevention and better management.

Emergency Government Ordinance no.92/2021 regarding regime of waste has fully transposed the provisions EU Directive 2018 /851/EC amending Directive 2008/98/EC on the waste. The purpose of the Ordinance is to align national legislation with European objectives regarding waste management.

In this sense, the Ordinance contributes to the transition to a circular economy. Also, the Ordinance establishes new increased municipal waste recycling rates and new rules for

calculating municipal recycling rates, providing a framework for the sustainable management of materials and ensuring the protection, conservation and improvement of the quality of the environment, human life and ensures the use of a prudent and rational management of natural resources.

Romania is engaged in the community effort within the European Green Deal and has undertaken through the National Recovery and Resilience Plan [4] the adoption of a programmatic document in the area of the circular economy, a commitment respected by the adoption, on September 27, 2022, of the National Strategy regarding the circular economy, by Government Decision no. 1172/2022 [5].

According to the assessment of the implementation of the environmental policy for 2022 by the European Commission, Romania should [6]:

- strengthen the policy framework, in particular through the National Circular Economy Strategy and Action Plan;
- continue to develop policies along long-term strategic lines and an integrated approach to integrate sustainable development, circular economy and eco-innovation in all policies;
- to adopt measures to increase the rate of use of circular materials.

In addition, the European Commission also recommends that Romania take bolder measures in the field of waste management, in particular regarding:

- closing and rehabilitating waste dumps that do not meet standards,
- aligning its waste management plans with the Waste Framework Directive,
- improving and expanding separate waste collection,
- supporting separate collection and recycling at municipal level
- improving the functionality of the extended producer responsibility system.

2 The automotive sector and automotive waste in Romania

The automotive sector is very important in the Romanian economy, with a contribution of 14% to GDP and 26% to the country's exports. Romania is home for two major vehicle manufacturers, Dacia-Renault and Ford, along with a number of auto parts manufacturers.

A considerable number of used cars enter Romania every year, so that 45% of the cars registered in Romania are older than 16 years. In 2020, the age of the car fleet was 16.9 years in Romania in the passenger car category, while the EU average is 11.8 years. Romania has 2.43 million cars older than 20 years, in an uncertain technical condition. That is, one third of the car park, given that cars under 10 years old do not even represent 20% of the total. Half of the cars in traffic, almost 4 million, are between 10 and 20 years old. More than 50% of these have gasoline engines, 48% have diesel engines, while only 0.6% use electricity, liquefied petroleum gas or natural gas [7].

Romania has to deal with a considerable amount of complex waste resulting from scrapped vehicles .

The existing dismantling centers do not have the know-how and technology to recover as large a quantity of components and materials as possible, comparable to the last generation technology used in other countries such as Germany or France.

In Romania, cars that reach the end of their life cycle end up either in car dismantling centers or in the so-called ReMat recycling centers. In dismantling centers, priority is given to those parts that can be dismantled and sold as spare parts on the second-hand market.

Vehicles dismantled through the national RABLA program usually end up in Remat centers where they are either crushed and exported as such or shredded. After shredding, metals are separated from non-metals for recycling. However, usually only metals end up being recycled. Other materials such as plastics, textiles or glass, which are often mixed and do not separate easily, generally end up in incinerators.

In Romania, there is poor communication between dismantling companies, manufacturers, waste disposal companies and authorities, which affects the flow of waste. Dismantling businesses mainly focus on reselling parts for their value and therefore focus heavily on only those parts that can be resold as such. This leads to little attention to those parts that can be reused with minor repairs or recycled. Thus, parts with low demand or low resale value end up in the landfill [8]. Due to the low volume of recycled material, the price of recycled materials is higher than the price of some raw materials, which discourages recycling. Romania also faces the phenomenon of illegal dismantling of end-of-life vehicles, which contributes to tax fraud, pollution and the degradation of human health and biodiversity, especially through fire-based metal separation procedures.

Law no. 212/2015 regarding the way of managing vehicles and end-of-life vehicles establishes measures aimed at preventing the formation of waste from end-of-life vehicles, reuse, recycling and other forms of recovery of end-of-life vehicles and their components in order to reduce the disposal of waste, as well as improving from an ecological point of view the activity of economic operators involved in the life cycle of vehicles, in particular economic operators directly involved in the treatment of end-of-life vehicles.

3 Romania- The national strategy regarding the circular economy and the Action Plan

The National Strategy regarding the circular economy was recently approved by GD no. 1172/2022 [9], which provides an overview of 14 economic sectors in terms of their circularity potential, setting the general direction for accelerating the transition from a linear to a circular economic model. The automotive industry is part of these **priority areas**.

As mentioned in the National Circular Economy Strategy for Romania, Romania's vision is to create a stable path to prosperity for the entire society through economic growth that ensures a sustainable environment for future generations.

The Action Plan, which will present detailed specific objectives, policy recommendations and concrete actions to follow, is being drawn up and will be adopted by the third quarter of 2023.

While the Strategy established the vision, mission and high-level objectives for the transition process to the circular economy in Romania, the draft Action Plan proposes and describes concrete actions to orient the Romanian economy towards circularity.

The Strategy and Action Plan are correlated at the national level and with the National Strategy for the Sustainable Development of Romania 2030 [10] and National Recovery and Resilience Plan, especially Component 3 regarding waste management within the Green Transition Pillar [11] and at the international level, with the SDGs and global objectives on the climate, as well as the new objectives of the EU's PAEC, in accordance with the principles and actions promoted in the framework of the European Green Deal [12]

The high-level objectives adopted by the National Circular Economy Strategy consist of:

- prioritizing local production over imported products and materials;
- strengthening economic and labor competitiveness;
- responsible and sustainable supply of raw materials;
- priority promotion of innovation and research in the field of the circular economy;
- preservation, conservation and sustainable use of natural resources;
- waste prevention and sustainable waste management;
- promoting responsible consumption and environmental education;
- protection of ecosystems and citizens' health.

In order to facilitate the achievement of these high-level objectives, the draft Action Plan proposes a series of cross-sectoral actions, as well as specific sectoral measures that are essential to facilitate the circular transformation in the entire Romanian economy.

The actions and cross-cutting measures for the Circular Economy Action Plan are detailed below.

Circular economy education, training and public awareness:

- Facilitating programs and laboratories oriented towards the circular economy, especially within higher education institutions.
- Promoting collaborations between industry and educational/vocational and technical training institutions to introduce training programs specific to the circular economy.
- Launching and/or supporting public awareness campaigns to address the seriousness of non-circular issues in Romania, such as waste disposal, WEEE and plastic storage, waste sorting, etc.
- Providing guidance and training on EU initiatives such as the Sustainable Products Initiative and the Sustainable Finance Package.

Research, development and innovation

- Promoting knowledge transfer between entities by creating physical and/or virtual collaborative spaces for knowledge sharing.
- The granting of tax advantages such as tax deductions for profit, reduction of labor tax, for private entities that carry out R&D activities in the field of the circular economy.

digitization

- Promoting the digitization of the governance framework of the circular economy and of all public authorities and entities involved in the implementation of SNEC&PA.
- Stepping up efforts to promote digital literacy among the workforce and the general population.

Ecological/circular public procurement

- Encouraging private sector adoption of green/circular public procurement.
- Promoting best practices for green/circular public procurement and providing guidance, manuals and training for the private sector.

Specific actions and measures for the automotive field included in the Action Plan:

Action 1: Training engineers in the field of circular economy principles

- Investment in R&D and education to train engineering students in circular economy principles to be applied to vehicle and component design, including electric vehicle battery design and research into reuse and recycling solutions.
- Concerted effort by public authorities and industry to adapt study programs to industry needs.
- Training to provide a competitive advantage in other areas of research and innovation related to the automotive sector – such as autonomous car testing in Romania, as well as other areas that could constitute a niche for Romania to contribute to innovation in this industry.
- Establishing a legal framework and adequate investment in training and education for this advantage to become a reality and advance.

Action 2: Modern dismantling centres:

- Creation of green dismantling centers that recover functional parts and materials, which enable the separation and identification of bulk materials and component parts and provide a safe disassembly environment.
- To make the most of the materials they incorporate, it is essential to have appropriate processing and recycling technologies and centers

Action 3: Training workers in the field of car mechanics:

- Training workers in the field of auto mechanics to work in repair shops capable of providing timely preventive maintenance services to the country's car fleet, delaying the end of its life and using the built-in resources as much as possible, in accordance with the principles of economy circular.

Action 4: Implementation of the extended producer responsibility system for used oils and lubricants

- an extended producer responsibility (EPR) scheme for the treatment of used oils, relevant for this sector being motor and transmission oils.

Action 5: Removal of abandoned cars: Remove abandoned cars from the public domain by strengthening enforcement of relevant legislation, including fines and time limits.

4 Dual university education in the automotive field in Romania

4.1 Legislation on dual higher education

The provisions regarding dual higher education were approved in Romania recently, by the Government's Emergency Ordinance no. 128 of September 23, 2022, for the amendment and completion of the National Education Law no. 1/2011 [13] .

The creation of the legislative framework was ensured to allow a complete dual education route from pre-university to university level. Thus, the New Education Law provides for the introduction of dual higher education, organized both for bachelor's degree programs, professional master's degree programs, as well as professional doctorate programs.

Dual higher education is the form of education in which the responsibilities for carrying out learning, teaching and assessment activities are shared between the accredited higher education institution and economic operators.

The higher education institution organizes and carries out learning, teaching and assessment activities and the economic operators organize work-based learning activities and participate in the assessment.

The higher education institution concludes with the economic operators the partnership contract that establishes the conditions of collaboration, the rights and obligations of the parties, as well as the costs assumed by the partners.

Local authorities, interested associative structures, respectively chambers of commerce, branch employer associations as well as other relevant partners at national or international level can contribute to the organization of dual higher education.

The student/PhD student concludes an individual study and practical training contract with the higher education institution and the economic operator, which establishes the rights and obligations of the parties.

The curriculum for dual higher education contains learning, teaching and work-based learning activities, as well as assessment. The workload specific to learning, teaching and learning through work activities is shared equally. The workload is estimated in accordance with ECTS/SECT, in terms of study credits.

In order to carry out the activities, in the case of state higher education institutions, funding is carried out according to a methodology approved by order of the Minister of Education.

Economic operators grant scholarships, at least at the level of those granted from public funds for university education, as well as from other funds for learning in quality conditions.

Dual higher education is organized:

- a) **for cycle I - bachelor's degree programs** , which correspond to a number of credits between a minimum of 180 and a maximum of 240 credits;
- b) **for cycle II - professional master's degree programs** , which correspond to a number of credits between a minimum of 60 and a maximum of 120 credits;
- c) **for cycle III - professional doctorate.**

The provisions of the Law regarding the organization, quality assurance, admission, assessment along the way, completion, preparation and release of study documents apply similarly to dual higher education.

For the entire duration of the work-based learning activity, the student enrolled in the form of dual higher education benefits from the recognition of seniority in work and specialty, without paying contributions to state social insurance, to unemployment insurance.

After completing the studies, the Higher Education Institution issues a certificate attesting the period in which the student carried out work-based learning activities. Economic operators who conclude a partnership contract with higher education institutions for the organization and development of dual higher education, benefit from facilities for the payment of taxes, fees and contributions due to the state budget, the social insurance budget, the budgets of special funds or local budgets, according to the provisions legal, as follows:

- a) the cumulative value of scholarships paid by economic operators to students enrolled in dual higher education is deducted from their profit tax;
- b) the cumulative value of investments dedicated to work-based learning activities is deducted from the profit tax of economic operators;
- c) the staff appointed by the economic operator for the direct guidance of learning through work benefit from exemption from the payment of income tax from wages.

4.2 Examples of strategic partnerships in the automotive field

Continental Sibiu has been involved in strategic partnerships with the "Lucian Blaga" University of Sibiu, the University of Craiova, as well as in impactful collaborations with universities in Alba Iulia, Cluj Napoca, Pitești, Brașov and Târgu Mureș [14].

The adaptation of the university curriculum, student projects, as well as equipping the laboratories in the faculties, were some of the actions that more than 60 colleagues with an active role in universities and company ambassadors have carried out over time. A series of events and campaigns dedicated to graduates and professionals were organized, with the aim of interacting in informal environments on topics of interest to them, from the automotive field.

Continental Sibiu offers students the chance to benefit from a paid internship throughout their studies, with the necessary schedule flexibility and the possibility to access the Continental Scholarship at the same time.

In addition to the series of benefits that students enjoy, they have the opportunity to develop professionally by working closely with colleagues from Sibiu, experts in their fields. For example, in 2021, 132 students working during their studies and 80 summer

interns have joined the Continental Sibiu team so far. More than half of Continental Sibiu's employees are either graduates of the "Lucian Blaga" University in Sibiu, or internship students who took the first steps in their careers at the company.

Sponsorships and donations to universities, classroom renovations, investments in equipment and kits, as well as university scholarship programs demonstrate this year's lasting partnership and the company's involvement in education at this level.

Renault Group Romania (RGR) actively participates in the development of education and the rapprochement between the university and industrial environments. Dacia supports dual professional education and is involved in the development of future generations. Pupils and students follow their technical passions alongside the specialists from the Dacia factories, where they learn a trade and come into contact with the industrial field.

Between RGR and the Politehnica University of Bucharest, the University of Pitești, the universities of Târgoviște, Iași, Cluj, Brașov, partnerships involving both teaching staff and students have been consolidated.

As part of **the Drive Your Future program**, Renault Group Romania has been offering practice opportunities for over 20 years. In 2021, 130 student interns were received in various departments, where they deepen the knowledge they received in college and learn new things from experienced people [15].

Through **the Uni-Partnerships Program**, Renault Group Romania offers technical expertise and didactic material to relevant universities, organizes visits and conferences for students.

Through **the @Renault Excellence Program**, 11 excellence scholarships are awarded to students from the University of Pitesti, an expression of the company's concern for the development of talents from the local community.

The **Student Employability Program** contributes to the personal development of students and increases their self-confidence in order to be prepared to start the career they want.

CONCLUSIONS AND RECOMMENDATIONS

Given that most of the existing regulations and political initiatives in Romania refer to waste management and mainly address the end-of-life phase of products, the Circular Economy Action Plan must also take into account the following aspects:

- the introduction of regulations regarding the ecological design phase of products;
- developing strategies for reuse and recycling of end-of-life products;
- the development of cluster policies to support industrial synergies and symbiosis, with impact in the automotive field;
- electric transport must be encouraged at national level, including by developing the framework for ensuring the specific infrastructure for charging batteries as well as the provision of renewable energy sources;

- ❑ last but not least, the action plan must take into account the development of policies and monitoring tools to eradicate the phenomenon of illegal car waste management – illegal imports, illegal landfills, car fires, etc.

Increasing the potential of the circular economy in Romania can also be achieved by:

- the development and promotion of innovative and sustainable models of management, design, production, consumption and post-consumer treatment in the automotive industry and the expansion of networks dedicated to the regenerative system specific to the circular economy;
- promoting the circular economy curriculum at all levels of education, including in non-formal and informal learning contexts;
- updating the professional retraining programs of the unemployed in order to acquire the new skills specific to the circular economy.

Thus, the challenges and opportunities of the circular economy associated with the automotive industry in Romania, correlated with the social, economic and environmental aspects, will drive the development of solutions to achieve the reduction of waste, increase the degree of recycling and valorization of resources.

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