Position Paper

EU Circular Economy Act

ACADEMICS FOR CIRCULAR ECONOMY

Foreword

Academics for Circular Economy welcomes the creation of a Circular Economy Act that aims to address issues such as resource dependence, competitiveness, and environmental pressures. To leverage the full economic, social, and environmental potential of the circular economy, the Circular Economy Act must address these critical points:

1. Competitiveness through upstream innovation

Design as a leverage point

The Circular Economy Act should prioritise the design and use phases of products, which determine environmental performance, economic value, and potential for job creation. In line with this, binding, measurable thresholds are needed for the restriction of substances of concern, durability, repairability (incl. access to spare parts, manuals, and guaranteed software support), and high-value recyclability. In addition, the Circular Economy Act should discourage resource-intensive product features that are not in line with core product features. These requirements should be tied to a verifiable Digital Product Passport that customs and market-surveillance authorities can operationalise. Repair provisions must be enforceable in practice, with clear rules on spare-parts availability timelines, fair pricing, bans on anti-repair locks, and lawful access to diagnostics and device data for independent repairers. As an example, requiring producers to screw instead of glue parts wherever possible would enable consumers, third-party repairers, remanufacturers, and recyclers to maximise resource value. Additionally, redesigning public procurement processes to prioritise sustainability and circularity is an important lever for scaling emerging markets.

Intellectual property and trade

Europe imports a large share of finished products, but most value-creation after sale happens inside the European Union, often by small and medium-sized enterprises such as diagnostics, repair, refurbish, upgrades, parts supply, logistics,

and resale. To ensure that repair rights are not undermined and to support downstream value creation inside the European Union, the Circular Economy Act must be accompanied by targeted intellectual property reforms. This includes explicit repair and interoperability exceptions on anti-circumvention measures for patents and copyright, limitations on trade-secret claims that obstruct access to safety or repair information, and a strengthened repair clause in the European Union Design regulation[1] for must-match parts. An authorization process is needed to enable independent parties to freely obtain and use visible component parts that replicate the original appearance and function for repairs. Mutual recognition across Member States and a notice-and-evidence mechanism that prevents design rights from blocking legitimate repair parts can ensure that design for repairability is followed by increased repair in practice. Fair, Reasonable and Non-Discriminatory terms should apply to diagnostic tools and data. Parts coding must be openly documented, i.e., manufacturers should disclose the software checks that link a device to its individual components—a practice that can prevent independent repairers from using compatible parts. Exhaustion rules must be clarified so that genuine spare parts can circulate across borders. This can unlock competition in after-sales services, lower consumer costs, keep products in use longer, and raise productivity per unit of material imported.

Extended producer responsibility

Fragmented approaches to Extended Producer Responsibility systems across Member States should be harmonized to boost the competitiveness and attractiveness of the Single Market. A modular approach could help ensure interoperability while allowing for individual Member States to test and pioneer ambitious approaches. Further, Extended Producer Responsibility must evolve beyond weight-based recycling incentives into a decisive driver of upstream innovation. Eco-modulation must operate at the model level, linked to independently verified repairability, durability, recyclability, interoperability, hazardous-substance disclosure, and software support. To overcome a siloed approach, good design and long product life should be prioritised over end-of-life

[1] https://eur-lex.europa.eu/eli/reg/2024/2822/oj/eng

treatment. Current Extended Producer Responsibility fees are largely independent of product quality, so linking them to actual product performance would correct this: durable products would receive the largest fee reductions, repairable products a moderate reduction, recyclable products would pay the standard rate, and non-compliant designs would face penalties, creating real incentives for manufacturers to prioritise higher-value circular outcomes. A share of Extended Producer Responsibility revenues should be ring-fenced for certified repair and refurbishment networks, consumer repair incentives, and open access to service data and affordable spare parts. The life cycle concept can serve as a solid foundation for integrating circularity into practice. Preparation-for-reuse should count toward targets with conversion factors reflecting carbon and material savings.

Fiscal incentives

The Value Added Tax (VAT) Directive allows reduced rates for certain repair services (e.g., for household goods and bicycles) but does not extend to refurbished and remanufactured products, information and communications technology repair, or a broader category of durable and repairable goods.[2] This narrow scope prevents putting in place incentives for high-value reuse. The Circular Economy Act should expand reduced VAT rates to cover all repair and refurbishment services as well as products meeting ecodesign and Digital Product Passport criteria. European Union law should establish a minimum level of fiscal support for circularity measures, while allowing Member States to adopt more ambitious measures to stimulate circular consumption, practices, and business models.

Coherence and enforcement

The Circular Economy Act requires coherence, resources, and accountability. A European Union-level rulebook should harmonise Ecodesign for Sustainable Products Regulation metrics, Right-to-Repair and Extended Producer Responsibility obligations, Digital Product Passport data fields, and surveillance

[2] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32006L0112

methodologies. Stable funding and dedicated training for enforcement authorities, coupled with meaningful penalties for non-compliance, are essential. Linking these measures to Extended Producer Responsibility eco-modulation, public procurement criteria, and consumer repair incentives will integrate upstream innovation into the European Union's broader competitiveness strategy. Auditability of the circular economy is an important asset for both governments and stakeholders. Designing reliable and efficient metrics for institutions and transparent self-reporting mechanisms can significantly facilitate the transition to a circular economy.

2. European resource independence by design

Systems thinking and sustainable development

Resource independence must be pursued through systems thinking that explicitly recognises interactions and trade-offs across the Sustainable Development Goals. Policy design should avoid narrow single-goal fixes and instead apply integrated metrics and scenario analysis so that measures to secure critical inputs do not undermine climate, biodiversity or social objectives and vice versa. OECD[3] and United Nations[4] guidance on systemic policy appraisal provides practical methodologies for aligning targets and avoiding adverse outcomes. To fully contribute to the Agenda 2030, social considerations—among ecological and economic ones—should be included comprehensively in the design of the Circular Economy Act, in addition to concepts for ensuring gains and losses of the circular transformation are distributed equally among societal actors. The Just Transition, as conceptualized in the ETC report "A Just Transition to Circular Economy"[5], must ensure fair distribution, procedures, and stakeholder recognition. The principle of Leaving No One Behind must be taken into account to safeguard the needs of most vulnerable populations. A human rights-based approach could serve as a guardrail to ensure interests are balanced without creating unjust burdens for individual actors.

[3] https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/02/systemic-thinking-for-policy-making_a95b3226/879c4f7a-en.pdf
[4] https://www.unssc.org/sites/default/files/u3/systems_thinking_for_a2030.pdf
[5] https://www.eionet.europa.eu/etcs/etc-ce/products/etc-ce-report-2025-8-a-just-transition-to-circular-economy

Reducing exposure through sufficiency

Strategic autonomy requires demand-side instruments that show where and how much consumption can be reduced or substituted, such as reuse and leasing models, outcome-based product-as-a-service models, and targeted phase-downs for low-value or high-risk materials. A clear European Union sufficiency agenda with sectoral targets, behavioural measures, and redistribution safeguards reduces import dependence and increases resilience to supply shocks. Thought leadership and recent policy proposals show sufficiency is complementary to circularity and strengthens resource resilience.[6]

Critical raw materials

The Critical Raw Materials Act establishes important capacity and diversification targets (incl. recycling benchmarks) to reduce external dependence, but current implementation risks privileging upstream extraction and processing over reuse, repair, and high-quality circular flows. The Critical Raw Materials Act's circularity elements are concentrated on post-consumer recycling and insufficiently prioritise demand reduction, reuse, and secondary markets. To reconcile strategic autonomy with circularity, the European Union should: (1) prioritise secondary supply quotas and recycled-content requirements that favour high-value reuse; (2) remove policy incentives that bias toward new extraction over the use of secondary resources; (3) align critical raw materials benchmarks with verifiable reuse targets driven by Digital Product Passports; and (4) ensure strategic-project fast-tracking does not bypass environmental and social safeguards.[7]

3. Resilience of the Single Market

Waste hierarchy

The Single Market can only deliver resilience if interventions focus on the highest value potential defined by the waste hierarchy.[8] Current European Union

[6] https://theshiftproject.org/en/publications/sufficiency-europe/
[7] See also: https://ieep.eu/wp-content/uploads/2023/10/Circularity-and-the-European-Critical-Raw-Materials-Act-IEEP-2023.pdf
[8] https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en

frameworks still allocate disproportionate attention and targets to recycling tonnage rather than life-extension strategies. To capture greater material value, the Circular Economy Act should explicitly embed the waste hierarchy in its core provisions and tie quantitative targets to higher-order activities. The core principle of the waste hierarchy, i.e. minimizing environmental impact while maximizing resource efficiency, should also be explicitly applied to considerations of different recycling options. Any choice between mechanical, chemical, or enzymatic recycling should therefore consider energy use, process emissions, losses, and final quality.

Single-market instruments

The ambition of circular interventions must be raised beyond fragmented national approaches. Stronger harmonisation of standards, Digital Product Passport requirements, and surveillance mechanisms are essential to ensure that repaired, refurbished, and remanufactured goods as well as secondary resources circulate freely. Reduced trade barriers and streamlined customs procedures would unlock economies of scale for circular businesses and ensure a level playing field across Member States. Recent studies emphasise that divergent national rules remain one of the main obstacles to circular scaling.[9]

Cross-border ecosystems

Europe should enable cross-border ecosystems and value networks for repair, remanufacture, secondary markets, and shared infrastructure so that circular activities scale and are not confined by national borders. Harmonised standards, mutual recognition of certifications, and interoperable Digital Product Passport data will lower transaction costs and allow genuine spares as well as refurbished goods to move freely across the Single Market. Cities and regions can act as hubs for such transnational ecosystems.[10]

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9 https://www.kommerskollegium.se/globalassets/publikationer/rapporter/2024/addressing-fragmentation-for-a-global-circular-economy.pdf

10 https://circulareconomy.europa.eu/platform/sites/default/files/2025-07/The%20Circular%20Economy%20in%20Cities%20and%20Regions%20of%20the%20European%20Union.pdf

Social equity in the European Union

A resilient Single Market must also address the distributive effects of shifting from linear to circular production. A variety of stakeholders needs to be reflected in this process, such as consumers, the workforce, and local or regional communities. Durable, reusable, and repairable products lower household costs over time while creating repair, refurbishment, and remanufacturing jobs. However, without explicit safeguards, low-income groups may face upfront affordability barriers. European Union measures should combine durability and repair obligations with consumer incentives, social tariffs for repair, and public procurement pull for affordable circular products. Furthermore, the workforce must be adequately supported throughout the circular transition, as shifts in value chains and competency needs can create job and income risks at both individual and regional levels across the European Union. Adequate safeguards like social security instruments, training and education, as well as transfer programs for affected workers should be envisioned in the Circular Economy Act to enable societal cohesion and resilience. Making stronger and more systematic usage of the European Just Transition Mechanism or the Cohesion Fund as part of the Circular Economy Act implementation could enable such safeguards.

Social equity beyond the European Union

The transition to new production systems under a circular economy also pose dangers for countries and people in the Global South. Reshifting European production systems to reflect circularity might have detrimental effects on international supply chains: Reshoring production to the European Union and reductions in waste exports to ensure European material loops might cost jobs and income opportunities in the Global South. For that reason, the Circular Economy Act should reflect instruments to safeguard international cooperation, ensure support for countries highly affected by the circular transition in Europe and seek streamlining with other international instruments like the Basel, Stockholm, and Rotterdam Conventions as well as the Global Plastics Treaty. This should go hand in hand with the Corporate Sustainability Due Diligence Directive, Corporate Sustainability Reporting Directive, and Conflict Minerals Regulation, to

ensure that the transition to a circular economy will benefit most countries and that newly-established circular infrastructures and business models follow ethical and human rights-based standards.

True costs and secondary markets

The current cost structures of the Single Market underestimate the ecological and geopolitical costs of primary extraction, while undervaluing secondary resources. The Circular Economy Act should recalibrate incentives and regulatory frameworks to internalise these costs and reward the use of secondary resources. Options include decisive eco-modulation of producer fees, fiscal support for secondary resource markets, and a cap-and-trade mechanism for secondary resources modelled on the European emissions trading system. This would encourage remanufacturing, drive innovation, and reduce strategic dependence, but is currently obstructed by the Critical Raw Materials Act's extraction-oriented design. A phased roadmap to secondary resources trading could reconcile critical raw materials and circularity agendas. In this context, hidden plastic waste flows[11] and secondary material losses from incineration must be identified, quantified, and reduced.

4. Environmental protection via a regenerative bioeconomy

Tackling systemic challenges

Policy discussions on the bioeconomy often overemphasise underexploited waste streams, while neglecting the structural impacts of land use, intensive monocultures, and animal-based protein dependence. These are the dominant drivers of biodiversity loss, soil degradation, and greenhouse gas emissions. The Circular Economy Act must therefore address these structural inefficiencies in production and dietary patterns by highlighting interdependencies, compiling relevant metrics, and proposing transition programs, e.g. for farmers, to leverage the regenerative bioeconomy for delivering far greater benefits than merely focusing on residual waste valorisation.

[11] https://ipen.org/sites/default/files/documents/ipen_plastic_waste_trade_report-final-3digital.pdf

Waste prevention

Circular bioeconomy interventions must prevent waste at the source. Suitable measures include reducing post-harvest losses by designing production to minimise by-products and improving supply chain efficiency. Waste prevention safeguards resources, reduces pressure on secondary markets, and maximises ecological and economic value. This approach is reinforced by the Farm to Fork Strategy, which highlights waste prevention as central to sustainable food systems.[12]

Regenerative practices and value chains

Regenerative practices—such as agroforestry, cover cropping, crop rotation, and reduced tillage—restore soil health, increase biodiversity, and enable agriculture to act as a carbon sink, reducing the need for costly industrial carbon removals. European Union policy should incentivise adoption through Common Agricultural Policy eco-schemes, foster value network collaboration, and integrate knowledge-transfer platforms.[13]

Multiple-loop biomass

The Circular Economy Act must emphasise maintaining material integrity over transforming waste into new materials, which often produces hybrid or chemically modified products that contaminate recycling streams and biological cycles. Some examples include: Food waste-based plastics introduce up to 15.3 g/kg of plastic contamination into compost systems.[14] Multi-layered packaging causes cross-contamination in polyolefin recycling.[15] Waste-to-energy emits carcinogenic dioxins.[16] “Biodegradable” bioplastics fragment into toxic microplastics.[17] Valorised biosolids spread antibiotic resistance genes.[18] Before (re-)entering resource streams, every product or substance should undergo at

[12] https://food.ec.europa.eu/system/files/2020-05/f2f_action-plan_2020_strategy-info_en.pdf
[13] https://www.eesc.europa.eu/en/news-media/news/regenerative-agriculture-should-anchor-eu-green-farming-and-economic-policies-says-eesc
[14] https://www.sciencedirect.com/science/article/pii/S2666765724000127?via%3Dihub
[15] https://www.mdpi.com/1996-1944/17/13/3202
[16] https://iopscience.iop.org/article/10.1088/1748-9326/abae9f
[17] https://www.sciencedirect.com/science/article/abs/pii/S0013935124008648
[18] https://www.sciencedirect.com/science/article/abs/pii/B9780323959988000017

least one life cycle assessment to determine its environmental impact, from resource extraction to its end of life. Setting a standard life cycle assessment criterion will ensure that products are designed to last, repairable, and recyclable as well as help in finding appropriate points for upcycling and material recovery. Upcycling preserves material quality for continuous circulation, avoids systemic contamination, and ensures materials remain fully integrated into technical or biological cycles. Institutions can encourage openness, support decision-making based on data, and foster ongoing advancements in circular design and production systems by incorporating life cycle thinking into policy frameworks and funding criteria. Embedding multiple-loop upcycling designs into the Circular Economy Act and related funding schemes will strengthen circularity, reduce contamination risks, and maximise environmental and economic benefits.

5. Innovation driven by research and development

Research funding

Embedding circularity criteria for European Union and Member State-level research funding incentivises innovation aligned with circular principles across sectors. Projects should be evaluated on how they contribute to material efficiency, life-extension, reuse, and recycling, ensuring that public investment drives measurable outcomes. This includes Horizon Europe calls, regional innovation grants, and industry-university partnerships.

Education and training

Circularity should be mainstreamed across educational curricula at all levels—from primary and secondary schools to vocational training and higher education. Developing circular economy literacy early fosters an innovation mindset and prepares a workforce equipped to implement circular practices in industry, design, and entrepreneurship. In this context, transformative education is crucial to encourage individuals to think critically, be empathetic, and actively engage in addressing sustainability-related problems. Specialized courses, workshops, and certification programs for students and professionals can accelerate the diffusion of circular economy knowledge and skills. New

circularity-focused Smart Specialisation university hubs and centres on different resource streams can empower people to become agents of systemic and lasting change while boosting the European Union's global competitiveness.

Circular startups and SMEs

Startups as well as small and medium-sized enterprises (SMEs) are critical drivers of circular innovation, but often lack access to funding, testing facilities, prototyping labs, and industry know-how. The European Union and national programs should provide shared facilities, mentorship, and technology transfer support to accelerate product development and scaling. Additionally, consultancy services for SMEs on circular practices and patenting circular innovations will help overcome resource constraints and strengthen the circular knowledge economy. It is essential for SMEs to apply general knowledge about the circular economy to their individual context, translating insights into actionable practices. Methods and tools for these transformations from linear solutions to circular practices should be provided alongside the Circular Economy Act.

Entrepreneurial ecosystems

Entrepreneurial ecosystems should be encouraged to adopt circular principles through knowledge building, regulatory incentives, tax breaks, or innovation vouchers. Policies should reward redesign, remanufacturing, and sustainable business model experimentation within incubators, accelerators, and industry clusters. This ensures that circular innovation is not siloed but embedded across broader business ecosystems, promoting systemic adoption of circular practices.

About Academics for Circular Economy

Academics for Circular Economy is an international non-profit network of engaged academics, ranging from graduate students to professors. Our members conduct research across the entire circular value chain—from ecodesign to material recovery and reuse, business model innovation, and policy analysis. *Academics for Circular Economy* publicises and participates in academic events and facilitates collaboration, knowledge exchange, and outreach to policy,

industry, and civil society. We work with various stakeholders, offering our expertise through talks, workshops, discussion formats, and consultancy, including mapping circular economy activities and creating tools and procedures for accelerating, auditing, and monitoring the circular transformation.

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