NEWSLETTER #7 | 2026

CIRCOMOD
CLIMATE ACTION AND CIRCULAR ECONOMY

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If you want to inquire more information about the project, explore http://circomod.eu/

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Dear followers of the CIRCOMOD project,

As we bring the four-year CIRCOMOD journey to a close, we would like to thank everyone who has followed, supported, and contributed to this ambitious collaboration. Together, we have explored how circular economy strategies can help accelerate Europe's transition towards climate neutrality, providing robust evidence to inform policy, research, and practice.

This final newsletter celebrates the project's achievements and the partnerships that made them possible. We look back at our joint final event with the Horizon Europe sister projects CircEUlar and CO2NSTRUCT, where researchers, policymakers, and stakeholders came together to discuss how modelling can translate into impactful circular economy policies for Europe and beyond.

We are also pleased to present our final flagship report, Assessment of Circular Economy Impacts on Climate Mitigation, which synthesises the project's key findings and offers one of the most comprehensive assessments to date of the relationships between material use, energy systems, and climate mitigation. In addition, this issue highlights some of our latest peer-reviewed publications, reflecting the scientific legacy of CIRCOMOD and the knowledge generated throughout the project.

While the project concludes, we hope the evidence, tools, and collaborations established through CIRCOMOD will continue to support the transition towards a more circular, climate-neutral, and resilient future.

Warm regards,

The CIRCOMOD team

From models to impact: Final event highlights how circular economy can accelerate Europe's net-zero transition

Brussels, 28 May 2026 – Researchers, policymakers, and sustainability experts gathered in Brussels for "Modelling to Policy: Circular Economy Pathways Towards Net-Zero", the joint final event of the Horizon Europe projects CIRCOMOD, CircEUlar, and CO2NSTRUCT.

Marking the culmination of four years of collaborative research, the event showcased how circular economy strategies can contribute to achieving climate neutrality while reducing resource use and strengthening Europe's economic resilience.

Bringing together leading scientists, European Commission representatives, and international organisations, the conference highlighted key findings from the three projects and explored how modelling can support the design of effective circular economy policies. Through keynote speeches, policy dialogues, and interactive breakout sessions, participants examined how circular approaches can be scaled from local implementation to European and global pathways towards net-zero emissions.

Whether you attended the event and would like to revisit the discussions, or were unable to join us in Brussels, these report and video offers valuable insights into the latest research and policy perspectives on the circular transition.

👉 Download report at **https://lnkd.in/eVJNk6Pu**

👉 Watch the video here **https://lnkd.in/eH82XipM**

CIRCOMOD core report highlights the benefits of Circular Economy strategies

The CIRCOMOD project has published its final core deliverable 6.1 **Assessment of Circular Economy Impacts on Climate Mitigation**, bringing together the project's key findings on how circular economy strategies can contribute to achieving climate neutrality. The report represents one of the most comprehensive assessments to date of the links between material use, energy systems and climate mitigation, providing valuable insights for researchers, policymakers and industry.

Developed using six state-of-the-art modelling frameworks—TIMES-EU, WITCH, GEM-E3, IMAGE, ICES-CE and RECC-CE—the assessment explores how circular economy strategies influence material demand, greenhouse gas emissions, energy systems and macroeconomic dynamics across both Europe and the global economy. By combining integrated assessment models, energy system models, computable general equilibrium models and material stock-flow models, CIRCOMOD demonstrates the value of using multiple modelling approaches to better understand the complex interactions between resource use and climate policy.

The report evaluates three broad categories of circular economy strategies. **Narrowing** strategies reduce the amount of material needed to provide goods and services through measures such as lower travel demand, more efficient use of buildings, product lightweighting and improved material efficiency. **Slowing** strategies extend the lifetime of products, buildings and infrastructure by promoting reuse, repair and refurbishment, delaying the need for new material inputs. **Closing** strategies increase recycling and the use of secondary materials, reducing dependence on primary resource extraction. The assessment shows that while these approaches are complementary, their impacts are not simply additive, as they interact in different ways and over different time horizons.

One of the report's most significant findings is that circular economy strategies could avoid approximately **300 $GtCO_2$ of cumulative greenhouse gas emissions over the course of this century**, even before additional climate policies are introduced. Among the three strategy groups, demand-side **narrowing** measures consistently deliver the greatest near-term climate benefits because they reduce the material demand associated with the energy transition, helping to moderate residual industrial emissions while easing pressure on critical material supply chains.

The assessment also reinforces that circular economy policies should not be viewed as a standalone resource-efficiency agenda. Instead, they should be fully integrated into climate policy to ensure that material efficiency and decarbonisation reinforce one another. The report highlights the importance of designing sector-specific policies that avoid unintended consequences, such as extending the lifetime of high-emission assets while delaying the uptake of cleaner technologies.

Looking ahead, the report identifies several priorities for future policy and research. These include placing greater emphasis on demand-side measures, accounting for the material requirements of renewable energy and electrification, developing regionally differentiated circular economy policies, and improving the representation of material flows, trade, rebound effects and social impacts in climate models. High-income regions have the greatest opportunity to reduce excessive material consumption, while lower-income regions should focus on meeting development needs with lower material intensity.

By integrating diverse modelling approaches and explicitly considering material constraints, CIRCOMOD provides a robust evidence base for future climate and circular economy policy. Its findings demonstrate that circular economy strategies are not a peripheral addition to climate action, but an essential component of achieving ambitious climate targets in a resource-constrained world.

The full **Deliverable 6.1 – Assessment of Circular Economy Impacts on Climate Mitigation**, together with all public CIRCOMOD project deliverables, is available on the **CIRCOMOD Deliverables** webpage: https://circomod.eu/circomod-deliverables/.

Highlights from the CIRCOMOD stories:

Explore blog articles written by our colleagues, offering insights and reflections on their research findings, academic discussions, and real-world experiences.

Reflections on the European Circular Economy Act: The case for a systemic approach

This article has been written by Janez Potočnik, Systemiq, Co-Chair of the UNEP International Resource Panel

As the European Union prepares its Circular Economy Act, an important question emerges: will incremental improvements be enough to deliver the transformative change Europe needs? In our latest blog article, **"Reflections on the European Circular Economy Act: The case for a systemic approach,"** Janez Potočnik, Co-Chair of the UNEP International Resource Panel and partner at Systemiq, argues that the answer is no.

The article highlights why the transition to a circular economy must go beyond better recycling and resource efficiency. Instead, it calls for a systemic approach that reshapes the way Europe produces, consumes and manages materials. Drawing on scientific evidence and policy experience, the author outlines four key priorities for the forthcoming Circular Economy Act: setting science-based material use targets, improving circularity metrics, aligning economic incentives with environmental realities, and strengthening governance of material flows. These measures, he argues, are essential to enhance Europe's competitiveness, resilience and long-term prosperity while staying within planetary boundaries.

As discussions on Europe's circular future continue, this thought-provoking article offers valuable insights for policymakers, researchers, businesses and anyone interested in sustainable systems transformation.

Read the full article on the CIRCOMOD website and join the conversation on the future of Europe's circular economy:[*https://circomod.eu/reflections-on-the-european-circular-economy-act-the-case-for-a-systemic-approach/*](https://circomod.eu/reflections-on-the-european-circular-economy-act-the-case-for-a-systemic-approach/)

Maximizing eco-industrial parks' positive outcomes to support regional circular economy transition

This blog article have been by ***Juliano Araujo*** *and* ***Alejandro Arias Castillo****, Institute for Industrial Ecology at Pforzheim University.*

As the European Union Eco-Industrial Parks (EIPs) are emerging as powerful enablers of the circular economy by fostering collaboration between businesses to optimise resource use, reduce waste, and create shared value. The latest CIRCOMOD blog explores how EIPs can deliver stronger environmental, economic, and social outcomes when supported by effective governance, regional cooperation, and evidence-based policies. It also highlights the importance of connecting industrial symbiosis with broader regional development strategies to accelerate the transition towards climate-neutral and resource-efficient economies.

Read the full blog to discover how EIPs can help shape resilient and circular regions at the following link:

https://circomod.eu/maximizing-eco-industrial-parks-positive-outcomes-to-support-regional-circular-economy-transition/

Find out other interesting finding presented in these articles go to: https://circomod.eu/category/blog/

Policy dialogues run by CIRCOMOD

Dialogue with stakeholders is a key component of the CIRCOMOD project. The primary users of the models and scenarios developed within the project are policymakers at national, EU, and international levels. This section highlights how we engage with these stakeholders to support and inform effective policy-making.

CIRCOMOD hosted Circular Talks – Machinery manufacturing emerges as a key enabler of Europe's eircular economy transition

Brussels, June 2026 – How can machinery manufacturing contribute to Europe's circular economy ambitions and climate goals? This question was at the heart of the latest EU Circular Talk, organised under the European Circular Economy Stakeholder Platform (ECESP) and drawing on the latest findings from the CIRCOMOD team including Edgar Hertwich (NTNU), Alejandro Arias Castillo and Tobias Viere (Pforzheim University).

The online event brought together policymakers, researchers, industry representatives and circular economy practitioners to explore an often-overlooked dimension of the circular transition: the role of machinery and equipment in reducing resource consumption, lowering greenhouse gas emissions, and enabling circular business models across the wider economy.

The workshop showcased new insights from the CIRCOMOD project, a four-year Horizon Europe initiative that has developed advanced modelling tools to better understand how circular economy strategies contribute to climate change mitigation. By linking material flow analysis, economic models and climate scenarios, CIRCOMOD provides policymakers with a stronger evidence base for assessing the climate benefits and economic implications of circular economy measures.

The video recording of the event is at https://www.youtube.com/watch?v=mxntK2F7KmI

The event proceedings reports is available at http://circomod.eu/wp-content/uploads/2026/06/Machinery-event-proceedings-report.pdf

Circular economy pathways for materials, buildings, and climate policy – CIRCOMOD webinar in Athens

In December 2025, researchers and stakeholders gathered in Athens for the webinar *"Circular Economy Pathways for Materials, Buildings, and Climate Policy"*, co-organised with CMCC. The event showcased the latest progress of the CIRCOMOD project in integrating circular economy (CE) strategies into climate mitigation modelling. The webinar opened with an overview of the project's analytical framework, highlighting how CE strategies—such as reducing material use, reusing products, and recycling—can be assessed across sectors, materials, and value chains. Presentations then explored different modelling perspectives. Demand-side analysis demonstrated how changes in service demand, including housing and mobility, can drive reductions in material consumption. Economic modelling using Computable General Equilibrium (CGE) frameworks illustrated how CE strategies influence macroeconomic outcomes such as GDP, trade, and sectoral performance.The session also introduced key tools developed within CIRCOMOD. Circular Economy Profiles were presented as a means of translating complex modelling results into accessible insights for policymakers and practitioners. In addition, the CIRCOMOD Data Hub was showcased as a central platform for harmonising and sharing material flow and emissions data across modelling communities. The concluding Q&A session raised important questions about implementation timelines, data gaps—particularly on reuse—and the geopolitical implications of material dependencies. Overall, the webinar highlighted the importance of combining advanced modelling approaches, robust data infrastructure, and cross-disciplinary collaboration to better understand and unlock the potential of circular economy pathways for climate policy.

Proceedings of the event is available at http://circomod.eu/wp-content/uploads/2026/04/Circomod-Athens-Webinar-proceeding-Dec2025.pdf

Explore our latest publications

Circular economy modelling for climate change mitigation: A review of empirical evidence and modelling approaches

Zanon-Zotin M., Fortes P., et al. Resources, Conservation and Recycling, https://doi.org/10.1016/j.resconrec.2026.109053.

Circular economy (CE) measures representation in GHG mitigation pathways is still not well captured in climate change mitigation models. To support modelling efforts towards better CE representation, two reviews were conducted: (1) the empirical evidence on the GHG mitigation potential of CE strategies across material supply and demand sectors and R-strategies, and (2) the current modelling approaches used to assess these strategies. Findings show that, while most studies focus on recycling, increasing attention is given to upstream strategies such as material substitution, design for reuse, and service-based business models. Important gaps remain, particularly around Refuse, Rethink, behavioural factors, rebound effects, as well as synergies and trade-offs with climate policy. Industrial ecology methods provide a detailed material flows representation but lack feedback mechanisms and economic dynamics. In contrast, GHG mitigation models offer broader system coverage but often simplify materials and CE dynamics. Better alignment between methods is needed, including shared definitions, improved data, and more collaboration across modelling communities.

Projected futures for the consumption of metals and non-metallic minerals

Arp A.F., Daioglou V., Köckritz L., Tettenborn J, et al. Environmental Research Letters DOI: 10.1088/1748-9326/ae7a92

This study presents a comprehensive assessment of future global bulk material consumption, covering metals (steel, aluminium, copper) and non-metallic minerals (cement, sand, limestone, clay). We use the Integrated Assessment Model IMAGE, combined with a stock-driven dynamic material flow analysis model, to provide full coverage of global and regional material flows. Following current policies, by 2050 consumption of steel, aluminium, copper are expected to increase by 25%, 97%, and 84% respectively. Cement, sand, limestone and clay increase by 5%–23%. The climate policy scenario shows increases compared to baseline across all metals and cement, especially in the 2030/2040 period driven by required electricity and vehicle system transformations. The largest relative increase is projected for copper and aluminium, i.e. 22% and 9%, compared to current policies in 2050. Combining climate policies and resource efficiency, however, can reduce the use of non-metallic minerals below current levels and stabilize steel consumption, thus enabling growth in housing, transport, and decarbonized electricity systems. The most effective measures are related to efficiency and sufficiency measures (such as building with less material and reducing floor space). Although copper and aluminium consumption continue to rise across all scenarios, this can be significantly limited by resource efficiency measures.

The life cycle climate impacts of industry-specific machinery technologies: A meta-analysis

Arias-Castillo A., Viere T. Resources Conservation and Recycling Advances, https://doi.org/10.1016/j.rcradv.2026.200354

Germany is trying to solve the housing crisis with new construction but also has its climate commitments. This study projects material demand and associated emissions from 2024 to 2050 using dynamic material flow analysis of a novel high-resolution building stock model based on synthetic population microdata. The model incorporates technological improvements in building design and material efficiency, finding that these fall short of carbon neutrality targets in 2045. A reduction in per capita floor area is required to meet the targets. The high spatial resolution of this study allows the identification of reduction hotspots within Germany's 400 cities and counties, emphasizing the need for location-specific policy for national goals.

Material circularity strategies in the stock-flow-service nexus of buildings, transport, electricity, machinery, furniture, and appliances

van Engelenburg, M., Berrill, P., Behrens, P. et al. Journal of Industrial Ecology https://doi.org/10.1007/s44498-026-00055-7.

Increasing global population and rising levels of wealth are raising demands for services such as shelter and mobility, leading to greater resource use and environmental impacts. Circular strategies can reduce the resources required for these services. However, the potential of circular strategies to reduce material demand is rarely quantified. Here, we present a method to link service, product, and resource use with circular material reduction strategies. We estimate the potential material reductions for shelter, mobility (including transportation infrastructure), spatial and thermal comfort, and supporting assets such as machinery, and energy infrastructure. We provide a review of the current state of the art on circularity strategies and stock-flow-service (SFS) data availability for all these sectors. We then make a first-order assessment of their theoretical potential for primary material demand reductions by linking them in a counterfactual approach. These show that the current global service provision and supporting assets rely on an in-use material stock of 81 tons per person, with 1.2 ton of materials needed per capita and year to maintain this stock. Current circular strategies could reduce primary material flows by 68% in the absence of rebound effects, economic, policy, or behavioral implications. 15% reduction would be achieved through modal shifts and sharing of products, 31% by extending product lifetimes, and 22% by reusing and recycling materials. This analysis and extensive data repository serve as a starting point for more detailed multi-sector future projections.

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CIRCOMOD Policy & Industry Briefs

The CIRCOMOD project has produced a series of policy and industry briefs designed to communicate its key findings. These concise publications translate project outcomes into insights, highlighting opportunities, challenges, and evidence-based strategies that support the transition towards low carbon circular economy.

Brief 1 – Tools and methods for policy makers

Brief 2 – Circular economy as a complementary tool for climate change mitigation

Brief 3 – Circular economy, material demand, and the macroeconomics of decarbonisation

Brief 4 – Circular economy policy for buildings and transport in Europe

Brief 5 – Circular economy for machinery and equipment

Curious about the CIRCOMOD project?

Learn about our work and approaches we are deploying in the CIRCOMOD project at https://circomod.eu/about-us/our-work/

Tests different visualization options for circular economy scenarios by visiting the CIRCOMOD Data Hub at https://circomod.eu/circomod-data-hub/

Read blog articles from CIRCOMOD team members at https://circomod.eu/category/blog/

Explore our ever increasing library of scientific publications: https://circomod.eu/category/library/

Please check all deliverables of the project at https://circomod.eu/circomod-deliverables/

If you want to inquire more information about the project, explore http://circomod.eu/

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