

POLICY LEVERS FOR A LOW-CARBON CIRCULAR ECONOMY

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EXECUTIVE SUMMARY

THIS REPORT EXAMINES POLICY LEVERS TO ACCELERATE THE TRANSITION TO A LOW-CARBON CIRCULAR ECONOMY. It is based on legal policy mapping and stakeholder consultation, combining a European Union (EU) perspective with insights into front-running member states, and focusing on two value chains (construction and mobility) and four material streams (aluminium, cement, plastics and steel), which are responsible for 70 percent of the EU's industrial greenhouse gas emissions.

A FUNDAMENTAL SHIFT IS NEEDED IN THE WAY WE DELIVER ON SOCIETAL NEEDS AND MITIGATE EMISSIONS. The extraction, processing and disposal of materials are a large source of greenhouse gas emissions. Closing material cycles and improving asset use offer a large mitigation opportunity which is insufficiently tapped into by climate policies. Climate change mitigation and the circular economy are mutually reinforcing objectives and policy makers in both fields should join forces.

THERE IS A POSITIVE DYNAMIC BEHIND LOW-CARBON CIRCULAR POLICY. The EU and front-running member states are taking important first steps and best practices lay the foundation for a more comprehensive and integrated policy framework. It is essential to consolidate policies along the entire value chain, building on existing policies such as ecodesign, extended producer responsibility and green procurement, while addressing flawed policies such as the current approach to waste, which promotes incremental improvements rather than tackling more fundamental issues with material use.

THE CONSTRUCTION AND MOBILITY VALUE CHAINS ARE WELL POSITIONED TO LEAD THE TRANSITION. In both sectors, policies should aim to reduce material and greenhouse gas footprints across the entire value chain: in construction by promoting secondary material use, circular design and green procurement; and in mobility by shifting the focus towards circular design and the functional economy. Material streams are however less specifically targeted and require dedicated policy attention. It is also essential to integrate policies across these sectors and material streams.

ONLY WITH AN AMBITIOUS POLICY PACKAGE WILL A TIPPING POINT BE REACHED. System level change is required and it is imperative to set clear, long-term objectives to create a sense of direction. Policymakers must act now to catalyse the transition to a low-carbon circular economy. This includes:

- 1 Strengthening a broad policy platform,** recognising the wide range of policies needed, engaging stakeholders at all levels, and integrating policies into a comprehensive framework with ambition on both material efficiency and climate change mitigation.
- 2 Building on policy best practices along the entire value chain** including material use, design, production, consumption, waste and secondary use.
- 3 Implementing innovative approaches for key sectors and material streams,** conducting metabolic analyses, improving material and product transparency, defining standards, guidelines and procurement criteria, setting clear targets, promoting front-runner approaches and preparing cross-sector action plans.
- 4 Aiming for nothing less than structural reform,** exploring a transition from labour to extraction or environmental taxation, developing consumption-based carbon accounting and setting ambitious long-term targets.

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INTRODUCTION

The Paris Agreement calls for bold action to mitigate climate change.¹ This cannot be achieved by renewable energy and energy efficiency alone and requires a fundamental shift in the way we produce, use and recover materials and products.

The circular economy is “*restorative and regenerative by design, aiming to keep products, components, and materials at their highest utility and value at all times*”² It is a far-reaching concept aiming to optimise the way our economies deliver upon societal needs, and can play a crucial role in realising the transformational change needed to meet European climate targets.³

Climate change and circular economy policies are complementary, yet the potential synergies between these two policy fields are under-utilised and far from optimised. Important first steps toward a low-carbon circular economy are being taken by the European Union (EU) and front-running member states such as Finland, France, Germany, The Netherlands and the United Kingdom.

This study forms part of a broader project led by the European Climate Foundation’s Industrial Innovation for Competitiveness (i24c) initiative, which seeks to quantify the emissions reduction potential of

circular economy strategies in the EU. It is based on legal policy mapping and stakeholder consultation (for details, see Annex), providing a broad European perspective and examining key policy developments in a selection of member states. It focuses on the construction and mobility value chains, which are central to the European economy and powerful engines for change, and on plastics, cement, steel and aluminium, whose value chains are responsible for 70 percent of the EU’s industrial emissions.

This paper intends to contribute to the debate on effective policy levers for a low-carbon circular economy. It explores how to create a tipping point whereby the transition to a low-carbon circular economy is not just necessary, but also inevitable.

The next section provides an overview of the climate change and circular economy policy landscape. It is followed by insights into policies targeting construction, mobility and the above-mentioned material streams. The final section outlines the way forward and provides policy recommendations. Lastly, the annex provides details on the legal policy mapping and stakeholder consultation.

Box 1:

GROWTH, CIRCULAR ECONOMY & CLIMATE CHANGE

The linear growth model has lifted billions out of poverty, and extracted billions of tonnes of materials to build our infrastructure and homes. Existing environmental issues and growing inequality however question the suitability of the linear growth model in an increasingly resource-constrained and globalised world. Various alternative ways to measure economic growth that include negative externalities show that, where Gross Domestic Product measurements show economic expansion, economies are actually contracting.⁴ This even raises the question whether, under the current circumstances, continued economic growth should be the first policy priority, when the costs of our current economic model outpace the benefits.

The way we measure economic growth is not the only metric that creates a distorted picture. Another example is the way we measure and allocate greenhouse gas emissions. While the EU has reduced its territorial greenhouse gas emissions, life cycle or consumption-based accounting shows that its emissions have actually grown. The difference lies in whether or not the emissions embedded in imported products consumed in the EU are accounted for. Although the territorial carbon accounting approach has merits in tracking progress towards the collective commitments under the Paris Agreement, it underestimates the mitigation potential that lies in European consumption habits, or the adverse impact of outsourcing on emissions in other countries. This is particularly relevant for carbon-intensive materials which are the primary scope of this policy assessment.⁵

1. See: http://unfccc.int/paris_agreement/items/9485.php

2. See: <https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept>

3. See: <https://www.circle-economy.com/climatechange>

4. Stuchtey, M.R., et al. (2017), A good disruption, available from: <http://gooddisruption.com>

5. ClimateWorks (2017), Europe’s carbon loophole (draft report for consultation), available from: http://www.climateworks.org/wp-content/uploads/2017/09/EU-carbon-loophole_final-draft-for-consultation.pdf

LOW-CARBON CIRCULAR POLICY LANDSCAPE

THERE IS A POSITIVE DYNAMIC BEHIND LOW-CARBON CIRCULAR POLICY

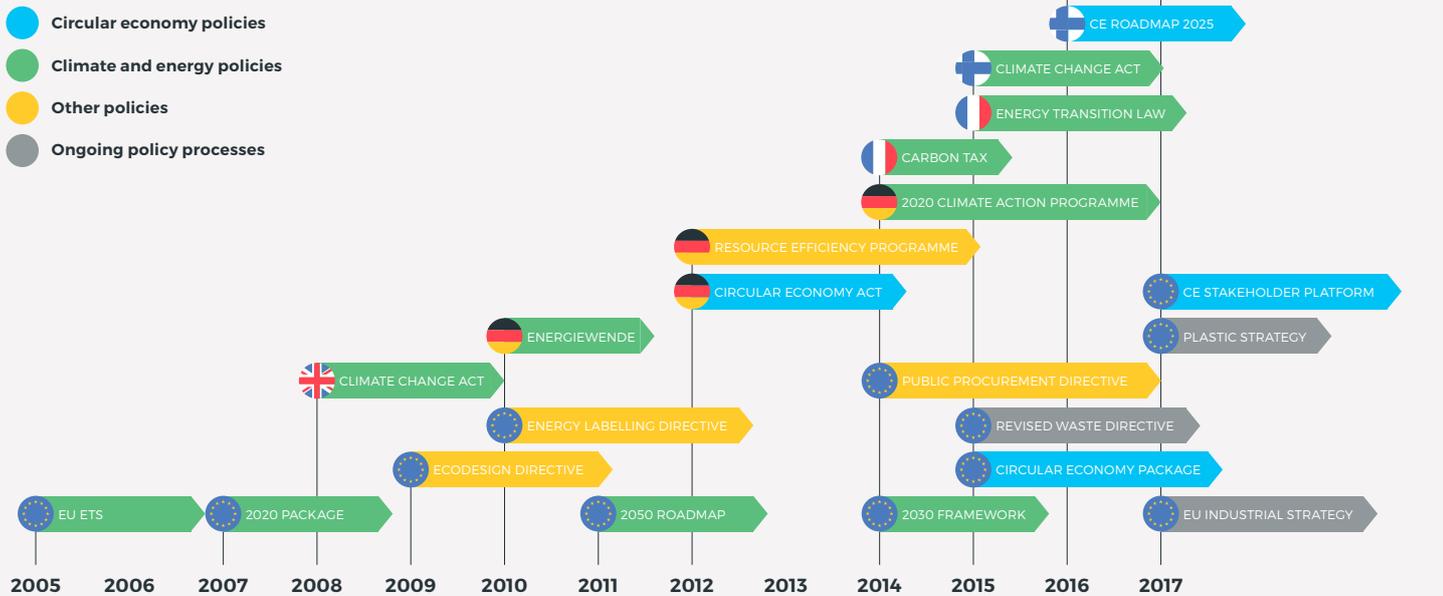
The end of 2015 saw two milestone accomplishments, with the Paris Agreement uniting 195 countries behind an ambitious climate mitigation commitment and, later that year, several decades of environmental policy coming together in the European Circular Economy Package.

As shown in Figure 1, the development of low-carbon and circular economy policies has accelerated in recent years, with significant contributions by the EU and a selection of member states. Recognising that both low-carbon development and circular economy require system change, the question is to what extent this positive dynamic can create tipping points, and whether the synergies between lowering greenhouse gas emissions, reducing the extraction of raw materials and reducing waste disposal and material dispersion are effectively tapped into

Figure 1:

KEY POLICY INITIATIVES

Timeline of key policy initiatives by the EU and a selection of member states - see Annex for more detail (note: the figure only shows key policy milestones, not the coverage of these policies in time. E.g. EU ETS was first implemented in 2005, but has been running ever since).



EU CLIMATE POLICY DOES NOT YET CAPTURE THE FULL MITIGATION POTENTIAL OF CIRCULAR ECONOMY STRATEGIES

The adoption of 2020 and 2030 emissions targets in 2007 and 2014 are core pillars of European climate policy. Together, they set a course toward greater use of renewable energy and improved energy efficiency, with targets set at 20 percent by 2020 and 27 percent by 2030. In the longer term, the European Union aims to reduce its greenhouse gas emissions by 80 to 95 percent by 2050 compared to 1990, which requires a reduction of industrial emissions by over 80 percent, of transport emissions by over 60 percent and of emissions from buildings by over 90 percent.⁶

To meet these targets the EU is deploying a range of policy instruments⁷ such as the EU ETS, the Effort Sharing Decision, the Energy Efficiency Directive, the proposal to regulate binding emission reductions by member states from 2021 to 2030, the proposed Energy Performance of Buildings Directive, and the European Strategy for Low-Emission Mobility. To date, however, European policies fail to deliver on the level of ambition required by the Paris Agreement⁸ and leave the mitigation potential of improved material use, the substitution of carbon-intensive materials and other circular economy strategies largely untouched. Additionally, despite being on track to meet its 20 percent emissions reduction target by 2020, life-cycle emissions associated with consumption in the EU have actually increased by 11 percent, mostly due to increasing trade volumes with China.⁹ European climate policy does not yet address the fundamental reform, which both low-carbon development and the circular economy require.

CIRCULAR ECONOMY POLICIES ARE EMERGING BUT HAVE A LIMITED SCOPE AND LEVEL OF AMBITION

The EU's Circular Economy Package includes an action plan for production, consumption, waste management and secondary material use and identifies five priority areas: plastics, food waste, critical raw materials, construction & demolition and biomass & bio-based products. It also focuses efforts on waste policy by proposing revisions to the Waste, Packaging, Landfill and Waste Electrical & Electronic Equipment Directives. The EU has since strengthened policy by, *inter alia*, developing a monitoring framework and plastics strategy, and by launching a stakeholder platform and expert group on financing.

Despite these positive developments, circular economy policy remains comparatively less mature than climate policy. It for example lacks, at this stage, a regulatory dimension beyond waste as well as a tangible implementation dimension. Furthermore, waste management has attracted a significant portion of the attention to date. While efforts on waste are certainly necessary, this limits the scope of circular policy and the attention paid to other critical areas such as design and consumption. This issue is well illustrated by the absence of clear circular economy targets in other areas than waste. Targets, for instance on renewable resource use, material efficiency, secondary material use or high-value recycling, are necessary to guide and inform policy development and corporate strategies.

6. See: https://ec.europa.eu/clima/policies/strategies/2050_en

7. See: https://ec.europa.eu/clima/policies/strategies_en

8. See for example: <http://climateactiontracker.org/countries/eu.html>

9. See: <http://www.climateworks.org/report/europes-carbon-loop-hole/>

FRONT-RUNNING MEMBER STATES ARE EXPERIMENTING WITH A RANGE OF POLICY APPROACHES

In addition to European policies that require member states to take action, front-running countries are experimenting with a range of policy approaches.

-  **Finland** aims to position itself at the forefront of the circular economy by following its 2025 roadmap to the circular economy published in 2015, and for example tackled packaging waste with its beverage packaging tax and refund system. The country also released its Climate Change Act in 2015, pledging to reduce emissions by at least 80 percent by 2050 compared to 1990.
-  **France** included the circular economy in the 2015 Energy Transition Law, for example setting targets to reduce landfill waste by 50 percent by 2025 and emissions by 40 percent by 2030 compared with 1990. France also promotes a comprehensive approach to the circular economy, including territorial & industrial ecology and Extended Producer Responsibility (EPR). Furthermore, France has introduced a carbon tax in 2014, to be strengthened from 30.5 euros per tonne in 2017 to 100 euros per tonne in 2030.
-  **Germany** focuses on waste management with its 2012 Circular Economy Act and the second phase of its 2016 Resource Efficiency Programme that set waste collection and recycling targets, and addresses consumption with the National Programme for Sustainable Consumption. It has also engaged its energy transition with the 2010 Energiewende and set emissions reduction targets of 80 to 95 percent by 2050 relative to 1990 in its Climate Action Plan.
-  **The Netherlands** has set ambitious targets to halve material consumption by 2030 and to become a fully circular nation by 2050. A 'raw materials agreement' was reached in 2016 and the government is driving circular innovation through industry initiatives such as Green Deals and Top Sector policies. The 2016 Climate Act proposal set emissions reduction targets of 55 percent by 2030 relative to 1990. The Netherlands also encourages innovation and legislative reform by designating areas exempt from regulation, which is recognised to be a barrier to a circular economy transition.
-  **The UK** is providing guidance to industry with initiatives such as the Industrial Strategy Green Paper and Automotive Strategy, while Innovate UK supports circular business models and design innovation. The government has also deployed fiscal policies such as the Landfill Tax, Climate Change Levy and Aggregates Levy. The UK set an emissions reduction target of 80 percent by 2050 relative to 1990 in the 2008 Climate Change Act, and more recently of 57 percent reduction by 2030.¹⁰ Lastly, Scotland is implementing a zero-waste strategy¹¹, supported by its circular economy fund.
-  **Several others** have taken steps toward the circular economy. For example, Sweden is promoting repairs through tax incentives¹², the Slovenian Prime Minister has set ambitions to lead the field¹³ and Estonia is implementing a resource tax.¹⁴

These policies lay the foundations for a more comprehensive, integrated and ambitious policy framework at both EU and Member State level. Yet, barriers remain as many of these countries also support waste incineration, subsidise fossil fuels, and oppose waste prevention targets.

10. See: <https://www.theguardian.com/environment/2016/jun/30/uk-sets-ambitious-new-2030s-carbon-target>

11. See: <http://www.zerowastescotland.org.uk>

12. See: <https://www.theguardian.com/world/2016/sep/19/waste-not-want-not-sweden-tax-breaks-repairs>

13. See: <http://www.slovenia.si/business/business-features/slovenia-aims-to-become-a-leader-in-the-circular-economy>

14. OECD (2017), Environmental Performance Reviews Estonia, available from: https://www.oecd.org/env/country-reviews/OECD_EPR_Estonia_Highlights.pdf

THE POLICY FIELD IS BROAD AND FOCUS ON KEY POLICY OPPORTUNITIES AND STRENGTHS IS NEEDED

A transition to the circular economy requires policy to address entire value chains, from material extraction, to design, to manufacturing, to distribution, to sales, to use, to end-of-use to waste management, and finally to secondary use. As a result, a wide range of policies are relevant to the transition, even though many are not explicitly labelled as such. There are however, a few policies which try to overcome the negative impact of a linear economy, like EPR and the shift of taxes from labour to environmental levies. Although Extended Producer Responsibility (EPR) is successfully applied in, *inter alia*, France, tax reform, as promoted by Ex'tax (see Box 2), is still building up the necessary popular and political backing for implementation.

The circular economy is a relatively new policy field, yet there is valuable experience to identify policy strengths and weaknesses. Consulted policy experts identified the following policies as promising and priorities for engagement.

- The **Circular Economy Package** is a good example of a framework aiming to integrate policies along the value chain, including pre-existing policies on design, manufacturing and waste. Further policy integration however remains necessary.
- Efforts by the by the European Investment Bank to provide **European funding** are also promising, as is the formation of a financing expert group to help with capacity building. It is now important to allocate dedicated circular economy financing in the European Multiannual Financial Framework beyond 2020.¹⁵
- The **Ecodesign**¹⁶ and **Energy Labelling Directives**¹⁷ have delivered positive results on energy efficiency¹⁸ and should be supported. Their expansion, for example to include material efficiency into the Ecodesign scheme, is desirable. Positive steps are being taken, such as the Commission's request to European standardisation organisations to develop standards on material efficiency and guidance on circular economy into Best Available Techniques reference documents (BREFs).
- **Extended Producer Responsibility** (EPR) schemes by the European Union and front-runners such as France have also proven to be effective in introducing life-cycle thinking in manufacturing, in supporting the marketing of better products and in promoting responsible interaction between producers and consumers.
- **Green Public Procurement** (GPP) is essential to create a demand for circular materials, products and services. Positive developments include the revised Public Procurement Directives, GPP handbook and circular economy brochure, and the recent initiative

for more efficient procurement. Yet, specific circular economy criteria are yet to be developed. Additionally, private sector procurement is also critical, though scarcely addressed.

- **Responsible consumption** initiatives are essential to create a market pull toward a low-carbon, circular economy. Efforts by the European Union or countries like Germany, such as the National Programme for Sustainable Consumption, are encouraging, although it is clear that considerable efforts are needed to sustain the required shift in mindset.
- Various **economic measures** taken by member states, for example the Landfill Tax in the UK, Carbon Tax in France or fiscal incentives on repairs in Sweden, were also considered effective. These measures can however result in market distortions and must be carefully integrated within a broader policy framework, with landfill taxation for example only being effective when implemented in tandem with other waste policies.¹⁹ Fiscal measures are also difficult to coordinate at a European level as taxation largely remains a national prerogative.
- Lastly, efforts by countries such as The Netherlands and UK to provide **strategic guidance to industry** and to support **front-runner approaches** have positive impacts on innovation and can prepare the ground for circular economy policy.

Conversely, a number of policies were perceived to be deeply flawed, in particular the current approach to waste management and the EU ETS.

- Current **waste policy** such as the revised legislative proposal on waste that is included in the Circular Economy Package promotes mere incremental improvements in collection and recycling and low-value recycling such as energy recovery that anchor linear consumption patterns.²⁰ Rather, there is an urgent need to tackle more fundamental material consumption issues and to promote high-value loops such as reuse, remanufacturing, refurbishment and lastly, material recycling.
- The **EU ETS** has weakened the incentive to reduce greenhouse-gas emissions, on account of the high number of allowances in the market and the consequential low carbon price. Additionally, the ETS leaves key climate change mitigation levers such as material efficiency and resource efficiency largely untapped, as the ETS only deals with emissions trading. On the contrary, with the current low price levels, it even provides heavy industry with a 'business as usual' licence.
- More in general, consulted experts pointed to the **lack of integration** of climate and circular policy.

15. See: http://ec.europa.eu/budget/mff/introduction/index_en.cfm#spendingplan

16. See: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0125&from=EN>

17. See: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0030&from=EN>

18. See also the evaluation report: https://ec.europa.eu/energy/sites/ener/files/documents/1_EN_autre_document_travail_service_part1_v2.pdf

19. See: <https://www.zerowasteurope.eu/2015/11/press-release-landfill-ban-a-false-path-to-a-circular-economy>

20. See: <http://ec.europa.eu/environment/waste/waste-to-energy.pdf>

VALUE CHAINS & MATERIAL STREAMS

MOBILITY AND CONSTRUCTION ARE PIVOTAL SECTORS THAT ARE WELL POSITIONED TO LEAD THE TRANSITION

The circular economy requires targeted sectoral efforts to ensure industry delivers on the functional needs of society effectively. Housing and mobility are two critical needs and these sectors will be instrumental to the transition. As the circular economy is a broad and far-reaching concept, it is important to take a comprehensive and innovative approach for these sectors, as illustrated by Circle Economy's '7 elements of the circular economy'²¹ (Figure 2). This framework includes three core material strategies (in light blue), to help optimise the use of key materials such as aluminium, cement, plastics and steel, and four systemic enablers (in dark blue) to inspire innovative solutions.

CONSTRUCTION POLICY SHOULD PROMOTE SECONDARY MATERIAL USE, ADVANCED DESIGN AND GREEN PROCUREMENT

The construction sector accounts for 9 percent of European GDP and 18 million direct jobs.²² Important European policy initiatives include the Construction Products Regulation, EN Eurocodes, Energy Performance of Buildings and Energy Efficiency Directives, the voluntary construction & demolition waste Protocol, and European Building Initiative. These policies have strengthened the policy landscape with a focus on energy efficiency and first steps taken to cover materials, design and waste. Other opportunities must however be pursued to expand policy coverage along the entire value chain and transition the sector to a low-carbon circular economy.

Material strategies such as material substitution, material efficiency and material recovery and reuse are particularly under-leveraged. For example recycled steel could be used in reinforced concrete structures.

Such strategies need the fundamentals of circular construction product policy to be developed and embedded in existing regulation and building codes.

A market push could include the development of technical guidance to industry, of (digital) solutions to link supply and demand for secondary materials, and economic measures on recycled materials and secondary resource use.²³ To this effect, efforts should be supported to develop material efficiency standards,²⁴ enhance material transparency (e.g. passports²⁵), and provide research and innovation funding toward the upcycling of secondary materials such as scrap metals and concrete.

A market pull could be created by strengthening building performance labels with circular economy criteria.²⁶ Green procurement guidelines and criteria are also needed for both public and private parties. Additionally, capacity building efforts are needed to embed circular thinking across the construction and demolition value chain. While efforts on new buildings are essential, Europe and many Member States are actively financing the retrofit of the existing building stock, which provides a unique opportunity to progress with circular renovation.

Continued efforts on construction and demolition waste recovery and recycling are also imperative as this waste is currently largely down-cycled, for example as fill in infrastructure development. However, a shift toward advanced design strategies is needed to avoid locking-in linear practices in a typically long-life building stock. Key design strategies include design-for-disassembly, modularity and functional flexibility²⁷, and are essential but hardly incentivised by existing policies. Design targets should also be developed, for example on material efficiency or recycled contents (e.g. steel).

Figure 2:

CIRCLE ECONOMY'S '7 ELEMENTS OF THE CIRCULAR ECONOMY'



21. See: <https://www.circle-economy.com/the-7-key-elements-of-the-circular-economy>

22. See: http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=8753&lang=en

23. See for example: <http://www.sciencedirect.com/science/article/pii/S095965261730210X>

24. See: <http://ec.europa.eu/transparency/regdoc/rep/3/2015/EN/C-2015-9096-F1-EN-MAIN-PART-1.PDF>

25. See: <http://passports.bamb2020.eu/#/login>

26. See for example: <https://www.dgbc.nl/circulairegebouwen>

27. See for example: <https://circle-economy.com/future-proof-built-environment>

THE MOBILITY SECTOR REQUIRES A SHIFT TOWARD CIRCULAR DESIGN AND THE FUNCTIONAL ECONOMY

The automotive sector accounts for 4 percent of European GDP and 12 million jobs.²⁸ Prominent European policies include the European Strategy for Low-Emission Mobility, the Cleaner Transport Facility, Alternative Fuels Infrastructure Directive, the Directive proposal for Transport Infrastructure Use, and the revision of the End-of-Life Vehicles Directive.

These policies primarily focus on the use stage, targeting energy efficiency and alternative fuels and infrastructure. Although significant progress has been achieved in curbing transport emissions, the sector has been troubled by recent scandals with emissions from diesel vehicles.²⁹ Current approaches also cause tensions between climate and circular policy, an example being the emphasis on energy efficiency, which drives the lightweighting of car fleets and the increased use of complex materials with often lower recyclability.

Alternative strategies are needed to tackle these issues and transition the sector to a low-carbon, circular economy. In particular, there is a need to shift the policy focus to design³⁰ and tackle issues such as the increased complexity of vehicles, while leveraging opportunities such as modular design and design-for-disassembly to facilitate the recovery and reuse of materials.³¹ Other design strategies to be pursued include design-for-durability such as the use of 'internet-of-things' technologies for preventative maintenance, and material efficient manufacturing. Lastly, life-cycle thinking could be stimulated by scaling EPR schemes.

Mobility being a strongly consumer-driven market, public procurement, for example incentivising cleaner public transport³², and private procurement, for example of electric fleets, are also essential to drive the sector forward. Additionally, the effect of economic and business incentives have proved to be effective and will likely play an important role in accelerating the emergence and uptake of alternative business models, drive trains and fuels.

At the use stage, a shift from ownership models to the functional economy should be considered, for example leveraging new trends in car sharing³³ and mobility-as-a-service. This shift requires attention to be paid to consumer information, careful integration of transport infrastructure as part of urban planning, and the rethinking of subsidies to private car stimulation.

Improved recovery and recycling of end-of-life vehicles also continues to be imperative. This should naturally

target recovery and recycling rates within the EU, but could also take a broader value chain perspective to address the leakage of old vehicles to developing and emerging economies, where end-of-life vehicle management is challenging, yet where innovative solutions are also emerging. Remanufacturing of car parts such as engines, drive shafts, gear boxes and onboard electronics is also a promising pathway in the mobility sector.³⁴

MATERIAL STREAMS ARE LESS SPECIFICALLY TARGETED AND REQUIRE DEDICATED POLICY ATTENTION

Plastics, cement, steel and aluminium are critical material streams for the European industry and economy, including the construction and mobility value chains. Yet, these material streams, and in particular aluminium, cement and steel, receive far less policy attention. The few relevant material policies such as EN Eurocodes and the Dutch Concrete Green Deal³⁵ also lack an explicit circular economy dimension.

In many ways, this lack of policy focus illustrates how material-use strategies have been largely ignored to decarbonise our economies. In turn, this highlights the need for more dedicated policy attention to address the production, use, disposal and recovery of key materials that are both critical to our economies and have heavy environmental footprints.

The plastics value chain serves as a first example at material policy, plastics being for instance recognised as a priority area in the circular economy Package and by the Dutch Government. A European Plastic Strategy is in development (expected December 2017) based on the roadmap published in early 2017 and will complement other initiatives such as the Marine Litter Strategy. There are indeed major challenges ahead, with production reaching 311 million tonnes in 2014, a twentyfold increase from 1960, and recycling rates remaining low at only 30 percent of collected plastic, while landfilling and incineration stood at 30 and 39 percent respectively.³⁶ Research by the Ellen MacArthur Foundation even suggested there could be more plastic than fish in the oceans by 2050.³⁷

The case of plastic is a powerful example that demonstrates the urgent need to overhaul waste management policy to tackle the root causes of excessive material use, significantly increase recovery and recycling rates, and promote high-value loops.

28. See: https://ec.europa.eu/growth/sectors/automotive_en

29. See for example: <https://www.euractiv.com/topics/dieselgate>

30. See for example: <https://www.circle-economy.com/thecircularcar>

31. See for example: <https://hoffmanncentre.chathamhouse.org/article/reusing-and-recycling-car-materials>

32. See for example: http://ec.europa.eu/research/press/jti/factsheet_fch2-web.pdf

33. See for example the initiative in London: <http://content.tfl.gov.uk/tfl-car-club-strategy.pdf>

34. See for example: <https://group.renault.com/en/our-company/locations/our-industrial-locations/choisy-le-roi-plant-2/> and <http://www.actronics.eu/en>

35. See: <http://www.greendeals.nl/gd030-verduurzaming-betonketen>

36. See: http://ec.europa.eu/smart-regulation/roadmaps/docs/plan_2016_39_plastic_strategy_en.pdf

37. See: <https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics>

This will require policy to extend along the entire value chain: providing more transparency on material and carbon footprints, for example with material passports; addressing packaging design, for example with the use of mono-materials rather than composites; tackling excessive consumption, for example with the phase out of single-use and non-recyclable plastics; and setting considerably higher recovery and recycling targets, for example enabled by dedicated standards.

In the case of aluminium, cement and steel, the fundamentals of product policy must be addressed. This will require more transparency on material sourcing, processing, use and disposal, as well as efforts to better understand the environmental footprints of virgin and recycled materials. To that end, metabolic and life-cycle approaches are needed to better understand how these materials flow through our economies, and where key leverage points may lie. Policy opportunities may include: the delineation and promotion of best practices in material-efficient automotive manufacturing for aluminium; the development of guidelines and financing of recycling infrastructure for concrete; and standard development and target-setting for steel recycling and reuse in the construction sector.

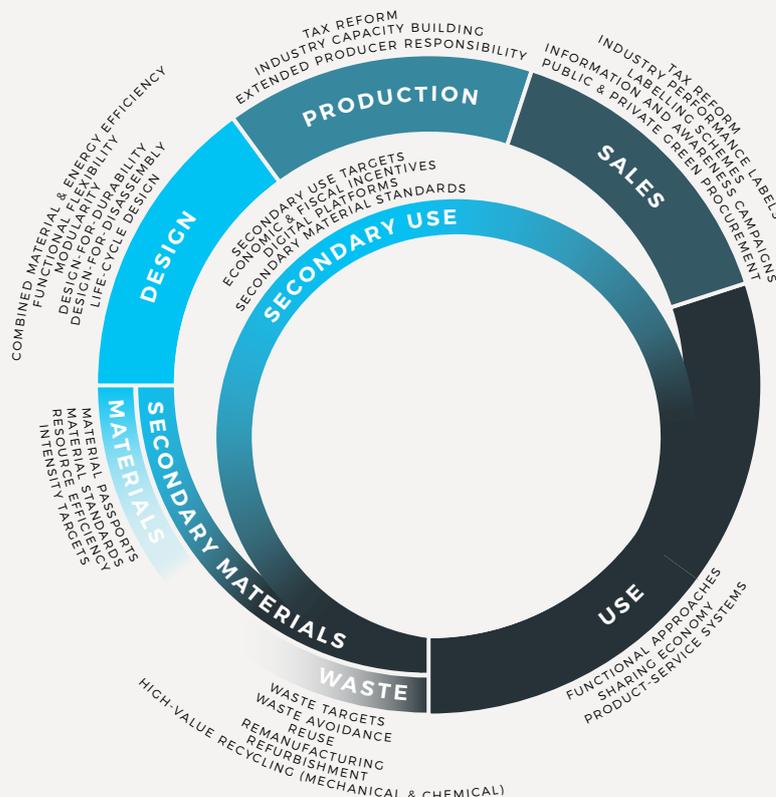
POLICY NEEDS TO BE INTEGRATED ALONG THE VALUE CHAIN AND ACROSS SECTORS AND MATERIALS STREAMS

While positive developments are taking place, it is clear that significant policy efforts remain necessary. The current focus on energy efficiency, use and waste has achieved some promising results, but cannot deliver on the level of emissions required to meet 2050 targets. There is a need to expand policy coverage along the value chain, as illustrated in Figure 3.

It is also crucial to recognise that many effective low-carbon circular economy policies such as material standards, circular design, EPR, green procurement, consumer information, material recovery, recycling and reuse, are shared by the construction and mobility value chains, as well as by many other industrial sectors. Furthermore, material streams such as aluminium, concrete, plastics and steel are highly complex and integrated across these sectors. For example, scrap steel from the automotive sector could be recycled and used by the construction sector. This points to a need for policy integration along value chains, but also across sectors and material streams. The recent announcement by the Commission of a renewed industrial policy strategy, provides a unique opportunity to shape this integration in the future.³⁸

Figure 3:

THE 'TIGHTENING GRIP OF POLICY' AROUND LOW-CARBON CIRCULAR CONSTRUCTION AND MOBILITY VALUE CHAINS



38. See: https://ec.europa.eu/commission/news/new-industrial-policy-strategy-2017-sep-18_en

WAY FORWARD

SYSTEMIC INERTIA AND MARKET DISTORTIONS MUST BE ADDRESSED

The transition to a low-carbon circular economy is an ambitious task that requires systemic intervention. This requires an EU vision to avoid that diverging socio-economic interests of member states will lead to watered-down, consensus-driven policies to ensure political backing from incumbent industries. For example, ambitious waste policies going beyond incremental improvement and adhering to circular economy principles are scarcely pursued as they would require leapfrogging by many member states.

The transition to a low-carbon circular economy also faces systemic inertia. As long as companies operate in a tax regime which encourages material overconsumption, which keeps labour costs high, and maintains subsidies for fossil fuels,³⁹ circular business models fight an uphill battle against linear incumbents, despite the subsidies for circular design, business models and innovation.

Circular transformation also creates winners and losers, as evidenced by the current transition from a fossil-fuel to a renewable energy system. This requires policymakers to act carefully in front of vested interests that will resist change unless they see a role for themselves in the future. For example, Europe has built considerable incinerator capacity, valorised by the focus on waste incineration promoted by the renewable energy Directive, while the circular economy calls for a widely more ambitious approach.

LOW-CARBON AND CIRCULAR POLICY ARE COMPLEMENTARY AND MUST JOIN FORCES

To decisively engage in the transition, it is essential that climate and circular policy join forces. For example, material-use strategies are central tenets of the circular economy and promise to deliver the transformational change needed to turn our economies into low-carbon economies in line with the Paris Agreement, yet they are scarcely pursued. With an estimated 67 percent of global greenhouse gas emissions stemming from material management, sustainable sourcing, and recycling, the efficient use of materials should be just as high on the agenda of climate policymakers as renewable energy and energy efficiency.⁴¹

However, our understanding of the mitigation potential of circular economy strategies lags behind our understanding of the impact of energy-related

Box 2:

NEW ERA, NEW PLAN

The Dutch foundation Ex'tax Project, together with the 'big four' accounting firms, calls for a fundamental tax shift from labour to natural resource use. It argues that prosperity should build on the talents of people rather than temporary resource rents. In the EU, 51 percent of tax revenues stem from labour, and 6 percent come from taxes on natural resources and consumption. This incentivises companies to make people redundant, and encourages overconsumption. By lowering public revenue from labour and increasing environmental taxes like VAT, payments for waste disposal, water consumption, carbon taxes, abolishing fossil fuel subsidies, etc., our tax system can help avoid the negative externalities which are currently not priced. This would encourage companies to adopt circular business models. Cambridge Economics estimated that a tax shift of 13 percent or 554 billion euros in the EU, could:

- 1 Increase employment levels by 2.9 percent, creating 6.6 million jobs;**
- 2 Increase GDP by 2 percent compared to the baseline; and**
- 3 Reduce CO₂ emissions by 8.2 percent by 2020, and save 219 billion cubic metres of water.⁴⁰**

The concept has support from the European Commission, the Organisation for Economic Co-operation and Development, International Monetary Fund and World Bank and numerous companies. It is one of the few policy proposals that aim to address the system barriers to the circular economy transition, targeting all materials and sectors. Still, adoption at EU or member state level is pending.

39. See: [http://www.europarl.europa.eu/RegData/etudes/IDAN/2017/595372/IPOL_IDA\(2017\)595372_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/IDAN/2017/595372/IPOL_IDA(2017)595372_EN.pdf)

40. Ex'tax, New era, New plan. Europe (Utrecht, 2016) available from: <http://www.neweranewplan.com>

41. UNDP (2017), Circular Economy strategies for Lao PDR, available from: <http://www.undp.org/content/undp/en/home/librarypage/climate-and-disaster-resilience-/circular-economy-strategies-for-lao-pdr.html>

measures. Similarly, there is more information on fuel related emission footprints than on material-related footprints. Efforts are needed to quantify the mitigation potential of circular economy strategies, such as the work currently being conducted by i24c.⁴² Additionally, efforts for comprehensive target setting, for example adding material efficiency to energy efficiency targets, could be an effective pathway to link climate and circular economy policy.

Furthermore, an expansion of current jurisdiction-based carbon accounting toward consumption-based⁴³ systems would help reveal circular mitigation opportunities from improved material flows, cross-sector and cross-border initiatives. As illustrated by the increase in European lifecycle emissions, significant emissions mitigation can be reached by addressing global consumption patterns and associated material flows.

LOW-CARBON CIRCULAR POLICY MUST BE CARRIED BY A WIDE RANGE OF INSTITUTIONS AND POLICYMAKERS

The breadth of the circular economy requires that a wide range of institutions and policymakers be engaged in the transition. This includes both geographical jurisdictions - European, national, local - and thematic institutions - social, economic, environmental.

The EU has a major role to play to support ambitious research and innovation programmes, to harmonise complex, pan-European value chains and to enable economies of scale in the way industry delivers value to society. European policy engagement should include continued efforts to lay out a comprehensive and integrated policy framework through Directives and, when possible, regulation. In the short-term, Ecodesign and EPR appear to be highly interesting pathways to pursue, able not only to affect design and manufacturing, but also to trigger positive impacts down the value chain, and in particular on waste management.

Member states are pivotal in contextually translating European directives, and have also demonstrated their ability to enrich the policy field with more ambitious, targeted and innovative policies. They have more room to manoeuvre with economic and fiscal measures to drive front-runner programmes, accelerate innovation and prepare the regulatory field. Making circular economy and climate action the focal point of the EU structural and cohesion funds can

help avoid that the progress gap between member states widens further.

Regional and municipal actors also have a key role to play in supporting practical and scalable implementation with public and private stakeholders on the ground, as many examples such as Amsterdam⁴⁴, Glasgow⁴⁵, London⁴⁶, Paris⁴⁷ and many others have shown.

A real transition to a circular economy, without shifting environmental impacts abroad, requires understanding the full life cycle of products and strengthening international cooperation where parts of the life-cycle are outside the EU. For climate action, the Paris Agreement provides a unique opportunity to improve the transparency of the carbon impact of consumption habits as well as our understanding of emissions along product life cycles. It also provides an opportunity to strengthen international cooperation along value chains, in particularly of carbon-intensive products and materials.

The circular economy is a major opportunity for economic competitiveness and could contribute as much as 1.8 trillion euros to the European economy by 2030.⁴⁸ The success of a transition to a low-carbon circular economy therefore requires careful integration within the European 'Jobs, Growth and Competitiveness' agenda. While the circular economy traditionally lands with environmental institutions, their reach is limited without engaging economic and social institutions, and even tax authorities. The example of the Netherlands, where circular economy policy is led from the top of the cabinet, demonstrates the advantages of positioning the circular economy at the core of socio-economic development, rather than marginalising it as an environmental issue.

AN AMBITIOUS POLICY PACKAGE IS NEEDED TO TIP THE SCALES TOWARD A LOW-CARBON CIRCULAR ECONOMY

Bold decisions are needed to secure the competitiveness of European industries, creating room to manoeuvre for disruptive newcomers, whilst improving the economic, environmental and social performance of industries with large footprints. There is sufficient experience with circular economy policy development and broader environmental policies to have an understanding of what works, and what does not. The following policy recommendations aim to achieve a low-carbon, circular European economy by mid-century.

42. See: <http://i2-4c.eu>

43. Wiedman, T.O. (2013), The material footprint of nations, available from: <http://www.pnas.org/content/112/20/6271.full>

44. See: <https://www.circle-economy.com/developing-a-roadmap-for-the-first-circular-city-amsterdam/#.WddtXROCxE4>

45. See: <https://www.circle-economy.com/wp-content/uploads/2016/06/circular-glasgow-report-web-low-res.pdf>

46. See: <http://www.lwarb.gov.uk>

47. See: <https://www.paris.fr/economiecirculaire>

48. See: <https://www.ellenmacarthurfoundation.org/news/circular-economy-would-increase-european-competitiveness-and-deliver-better-societal-outcomes-new-study-reveals>

STRENGTHEN A BROAD POLICY PLATFORM

- **Recognise a broad range of policies** along the entire value chain.
- **Engage policymakers at all levels:** European, national, regional and municipal.
- **Involve socio-economic institutions** alongside environmental institutions.
- **Integrate the policy fundamentals** in a comprehensive framework.

BUILD ON POLICY BEST PRACTICES ALONG THE VALUE CHAIN

- **Materials** - Support the development and implementation of material efficiency standards and guidance into BREFs.
- **Design** - Consolidate ecodesign and energy performance of buildings Directives to strengthen advanced circular design strategies that integrate life-cycle thinking, energy and material efficiency, modularity and functional flexibility.
- **Production** - Scale EPR schemes to engage the responsibility of producers throughout product lifecycles, building European experiences and national best practices and provide capacity building efforts for industry.
- **Consumption** - Strengthen the market pull for low-carbon circular products and services with public and private green procurement, performance labels and consumer information and awareness campaigns.
- **Waste** - Overhaul waste policy toward waste avoidance and high-value recycling, for example targeting ongoing revisions of waste Directives within the circular economy package.
- **Secondary use** - Promote high-value reuse of materials, parts and products, providing research and innovation funding to develop logistical, recycling, refurbishment and remanufacturing infrastructure.

IMPLEMENT AND ENABLE INNOVATIVE APPROACHES FOR CONSTRUCTION, MOBILITY AND MATERIAL STREAMS

- **Conduct metabolic analyses** to map and quantify material and/or value flows and reveal systemic leverage points.
- **Improve material & product transparency**, for example with the development of carbon-footprinted material passports.
- **Define standards, guidelines and procurement criteria** for material (re)use, material efficiency, and low-carbon circular products and services.
- **Set clear targets** on resource and material efficiency and/or intensity, waste collection, material recycling, refurbishment and remanufacturing.
- **Promote front-runner approaches** to drive innovation and scalable solutions for example building on efforts by the Netherlands and UK.
- **Prepare integrated cross-sector action plans** to tap into industrial symbiosis opportunities, building on the forthcoming European industrial strategy.

AIM FOR NOTHING LESS THAN STRUCTURAL REFORM

- **Explore a transition from labour to extraction or environmental taxation**, building on experiences with carbon taxation in France and the UK and on initiatives such as Ex'tax.
- **Develop consumption-based carbon accounting** to complement jurisdiction-based systems, to reveal cross-border and cross-industry mitigation opportunities.
- **Set ambitious long-term objectives** to create a sense of direction, support back-casting of policy requirements and guide integrated industrial strategies.

ANNEX

This report was commissioned by the European Climate Foundation. It has been prepared based on a high-level legal review by Allen & Overy (not policy-motivated) of key relevant policies in selected Member States and the EU (not annexed), followed by stakeholder consultation led by Circle Economy. This report is intended as a conversation starter, addressing the European Climate Foundation's query into the most effective policy levers toward a low-carbon circular economy. It forms part of a broader project led by i24c and complements quantitative research conducted by Material Economics on the mitigation impacts of circular economy strategies in the construction and automotive sectors.

Consultation

Expert consultation included an expert workshop, interviews and an invitation to provide feedback on a draft version of the report. While the views expressed in this report are strictly those of the authors, we wish to acknowledge the contributions made by the individuals listed below.

Table A1: Alphabetical list of experts consulted for this report

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Policy mapping

The policy mapping was led by Allen & Overy and aimed to provide a high-level, non-exhaustive overview of key climate change mitigation and circular economy policies in the European Union, Finland, France, Germany, The Netherlands and United Kingdom. The following tables have been drawn up on the basis of Allen & Overy's policy mapping exercise and provide a summary and hyperlinks to the policies identified,⁴⁹ including:

- European circular economy policy forming part of or explicitly connected to the 2015 circular economy Package;⁵⁰
- European climate change mitigation policies as listed by the Directorate General for Climate Action;⁵¹
- Other European policies relevant to the circular economy or to the sectors and materials streams in scope; and
- A selection of key National policies identified in the policy mapping exercise or presented as best practices by consulted experts.

Allen & Overy's policy mapping report is available at www.allenoverly.com.

49. As well as to some background documents and to a few developments occurring after finalization of the policy mapping exercise in August 2017

50. See for example: http://europa.eu/rapid/press-release_MEMO-17-105_en.htm

51. See for example: https://ec.europa.eu/clima/policies/strategies_en

Table A2: European circular economy policy

POLICY	OVERVIEW	TIMELINE
Circular Economy Package	Legislative package including economic measures and regulation. Focuses on waste but also covers design, production, consumption and secondary materials.	Action Plan published in December 2015 alongside misc. Directive proposals on waste. Progress report published in January 2017.
Proposed Directive on waste	EU Directive setting targets for reuse and recycling of municipal waste.	Proposal published in December 2015 to amend the 2008 waste Directive.
Proposed Directive on packaging waste	EU Directive setting targets for reuse and recycling of packaging waste, including plastic.	Proposal published in December 2015 to amend the 1994 packaging Directive.
Proposed directive on landfill	EU Directive to reduce negative environmental effects of landfilling.	Proposal published in December 2015 to amend the 1999 landfill Directive.
Proposed Directive on waste electrical and electronic equipment	EU Directive improving data collection by Member States.	Proposal published in December 2015 to amend the 2012 Directive.
Ecodesign Directive & working plan 2016-19	EU Directive establishing a framework setting ecodesign requirements for energy-related products. The 2016-19 working plan includes contributions to the Circular Economy Action Plan.	Directive adopted in 2009, and working plan published in November 2016.
Green Public Procurement for the circular economy	Guidance documents to support green public procurement in a circular economy.	Buying Green! Handbook published in April 2016, GPP for a circular economy brochure published in October 2017. Construction and mobility criteria released in 2016 and 2017.
Industry-wide Construction and Demolition Waste Management Protocol	Protocol introduces non-binding guidelines on the management on construction and demolition waste.	Protocol published in September 2016.
Guidance on circular economy into BREFs	Guidance for industrial permitting under the EU industrial emissions Directive, setting process standards (best available techniques and associated emission levels).	Included in the 2015 circular economy action plan and reported on in the 2017 progress report.
Circular Economy Stakeholder platform	Stakeholder platform aiming to advance adoption of the circular economy, strengthen cooperation and identify barriers.	Stakeholder conference held in March 2017 and call for expression of interest for the coordination group published in July 2017.
Circular Economy Financing	Economic measures and financing to support research & innovation and foster the transition. Includes funding under H2020 and LIFE, initiatives by the EIB and the formation of a circular economy financing expert group.	Funding available under H2020 and LIFE programmes 2014-20, applications for the expert group opened in May 2017.
Marine Litter Strategy	EU strategy outlining an action programme calling for marine litter reduction targets.	Overview of EU legislation presented in 2012, followed by action under the circular economy package in 2016 and 2017.
Plastics strategy	Forthcoming Communication targeting dependence on virgin fossil feedstock, recycling and reuse, and leakage into the environment.	Expected in December 2017, based on a roadmap published in January 2017.
Monitoring framework for the circular economy	Roadmap outlining processes for the development of a monitoring framework for the circular economy.	Plan published in April 2017, and roadmap expected in late 2017.

Table A3: European climate change mitigation policy

POLICY	OVERVIEW	TIMELINE
2020 package, 2030 framework, 2050 low-carbon economy	Binding legislation (2020 package) and medium- to long-term energy and climate targets to decarbonise the European economy.	2020 package set in 2007 and legislated in 2009, 2050 plan released in 2011, and 2030 framework adopted in 2014.
European Emissions Trading Scheme	Market-based mechanism based on a 'cap and trade' system aiming to reduce greenhouse gas emissions in the EU.	Phase I was launched in 2005, Phase II in 2008, Phase III in 2013, and Phase IV is due to begin in 2021.
Effort sharing decision	EU decision establishing binding annual GHG emissions targets.	Decision published in April 2009, and applying in the period 2013-20.
Proposed energy efficiency Directive	EU Directive update anchoring energy efficiency as a core European priority and setting a 30 percent energy efficiency target by 2030.	Proposal released in November 2016 to amend the 2012 energy efficiency Directive
Proposed regulation on binding annual greenhouse gas emission reductions by Member States from 2021-30	EU regulation establishing binding annual GHG emission targets for Member States.	Proposed regulation published in July 2016, to be implemented in the period 2021-30.
Monitoring regulation for the Energy Union	EU regulation outlining governance mechanisms for the Energy Union, with a particular focus on meeting 2030 energy & climate targets.	Regulation published in November 2016.
European Strategy for Low-Emission Mobility	EU Communication to foster the transformation of the automotive sector towards a low-carbon circular economy, while safeguarding the sector's competitiveness.	Strategy released in July 2016.

Table A4: Other relevant policies

POLICY	OVERVIEW	TIMELINE
Development of material efficiency standards	Request to the European standardisation organisations to develop generic standards on the durability, reusability and recyclability of certain products	Request sent in December 2015.
Guidance on Extended Producer Responsibility	Provides information and guidance on the effectiveness and best practices for EPR schemes across different product categories.	Study launched in 2012, and final report published in 2014
Energy Labelling Directive	EU Directive outlining labelling and standard product information for energy-related products.	Directive adopted in May 2010. Regulation was adopted in July 2017.
Ecolabel regulation	EU regulation defining a voluntary environmental labelling scheme for consumer and business products.	Regulation adopted in 2010.
Public Procurement Directives and initiative	EU Directives simplifying public procurement procedures and making them more flexible, and initiatives to improve the impact of public procurement.	Directives adopted in 2014, and initiative on better procurement launched in October 2017.
Proposed energy performance of buildings Directive, and European Buildings Initiative	EU Directive setting targets to decarbonize the housing stock, accompanied by economic measures and funding to enhance the energy efficiency of buildings.	Directive proposal published in November 2016, amending the 2010 Directive.
Construction Products Regulation	EU regulation setting harmonised rules for the marketing of construction materials.	Various acts and legislative action taken since 2013
EN Eurocodes	Series of ten Standards providing a common approach for the design of buildings and other civil engineering works and construction products.	Eurocodes released in 2008 for application from 2010.
Revision of the clean vehicles Directive	EU Directive promoting clean and energy efficient road transport vehicles.	Public consultation ran from December 2016 to March 2017, and will result in the revision of the 2009 directive.
Proposed Revision of the Directive on the charging of heavy goods vehicles for infrastructure use	EU Directive introducing the 'polluter pays' principle.	Proposal released in May 2017 to amend the 1999 Directive.
Cleaner Transport Facility	Economic measures and funding to support the deployment of cleaner transport vehicles.	Presented in December 2016.
Industrial Policy Strategy	Industrial Policy Strategy to empower European industries to continue delivering sustainable growth and jobs.	Announced in September 2017
Registration, Evaluation, Authorisation and Restrictions of Chemicals (REACH)	Regulation aiming to improve protection health and environmental protection by identifying intrinsic properties of chemical substances early and well.	Regulation passed in 2006.

Table A5: National policies - Finland

POLICY	OVERVIEW	TIMELINE
Leading the Cycle, Finnish road map to a circular economy 2016-2025	Outlines a strategy toward a sustainable, circular economy between 2016 and 2025.	Published in 2015.
Climate Change Act	Set emissions binding reduction targets to 2050.	Adopted in 2015.
Waste legislation	Includes Waste Act (2011) and Decree (2012), Environmental Protection Act and Decree (2014), decrees on earth construction waste (2006), landfill (2013), packaging waste (2014), and end-of-life vehicles (2015).	Various legislation, most relevant of which are dated 2011-2015.
Beverage packaging taxation and refund system	Act imposing an excise-duty on beverage containers enabling the efficient collection of packages for recycling.	Adopted in June 2013.

Table A6: National policies - France

POLICY	OVERVIEW	TIMELINE
Energy transition and green growth law	Broad legal framework to promote the energy transition and green growth, including Section IV dedicated to waste and the circular economy.	Adopted in August 2015.
Carbon tax	Carbon tax forming part of the Interior Consumption Tax on fossil fuels.	Introduced in 2014, with a progressive strengthening toward 2030.
Industrial & territorial ecology	Promotes pragmatic geographical approaches to minimise environmental impact, improve material flows and industrial synergies in specific geographies.	Mandated by the energy transition law and supported by Ademe since 2015.
Extended Producer Responsibility	Various European, voluntary and national schemes to anchor life-cycle responsibility for producers across a range of products.	Appeared in law in 1975, then strengthened from 1993. Automotive sector covered in 2006.

Table A7: National policies - Germany

POLICY	OVERVIEW	TIMELINE
Resource Efficiency Programme	Programme for sustainable resource use and conservation of natural resources.	First phase derived from 2010 raw material strategy, implemented from 2012, and second (current) phase from 2016.
Circular Economy Act	Act aiming to promote the circular economy to conserve natural resources and protect the environment in the generation and management of waste.	Adopted in 2012. Note: updated packaging directive (VerpackG) is expected in 2019.
National Program for Sustainable Consumption	Describes sustainable consumption fields for action and identifies actions, including for mobility and housing.	Released in February 2016.
Climate Action Programme 2020 and Action Plan 2050	Delineates actions to meet German climate targets, including energy efficiency, construction and transport measures.	2020 programme adopted in 2014, 2050 action plan adopted in 2016.
EnergieWende	National strategy to conduct the energy transition to a low-carbon and sustainable system.	Passed in 2010.

Table A8: National policies - The Netherlands

POLICY	OVERVIEW	TIMELINE
2050 circular economy strategy	National strategy setting resource efficiency targets to complete a transition to the circular economy by 2050.	Policy note published in September 2016.
Climate Act proposal	Proposed climate change act setting emissions reduction targets for 2030.	Proposed in September 2016, pending review by recently formed government.
Green Deals	Agreements between private, public and civil society stakeholders on green growth or social issues.	Green Deals strategy launched in 2011.
Top Sector policy	Economic growth and competitiveness programmes for strategic sectors of the Dutch economy.	Innovation programmes running to 2020.
Raw Materials Agreement	Multi-stakeholder agreement to ensure the Dutch economy can operate on reusable raw materials in the future.	Announced in September 2016 and signed in January 2017.

Table A9: National policies - United Kingdom

POLICY	OVERVIEW	TIMELINE
Climate Change Act	Sets binding emissions reduction targets for 2050.	Adopted in 2008.
Industrial strategy Green Paper	Outlines a series of overarching, long-term policies across many sectors, including waste, automotive and construction.	Published in January 2017 and currently undergoing consultation.
Green taxes	Fiscal measures to promote green growth, including the landfill tax, climate change levy and aggregates levy.	Landfill tax, climate change and aggregates levies respectively introduced in 1996, 2001 and 2009.
Automotive Strategy	Sets out the actions that government and industry will take collaboratively to secure the next stage of automotive sector growth.	Released in July 2015.
Innovate UK initiatives	Includes efforts to support business model innovation and circular design .	Business model competition engaged in 2015, design initiative in 2016.

This report was authored by:



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Disclaimer

The views expressed in this report are those of the authors, and do not necessarily reflect the official position of the European Climate Foundation or Allen & Overy LLP. Nothing in this publication constitutes legal advice from Allen & Overy LLP.

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A social enterprise, we accelerate the transition to circularity through the development of practical and scalable solutions. Our tools and programmes are designed to facilitate decision making and action plans for businesses and governments in a wide range of sectors.

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