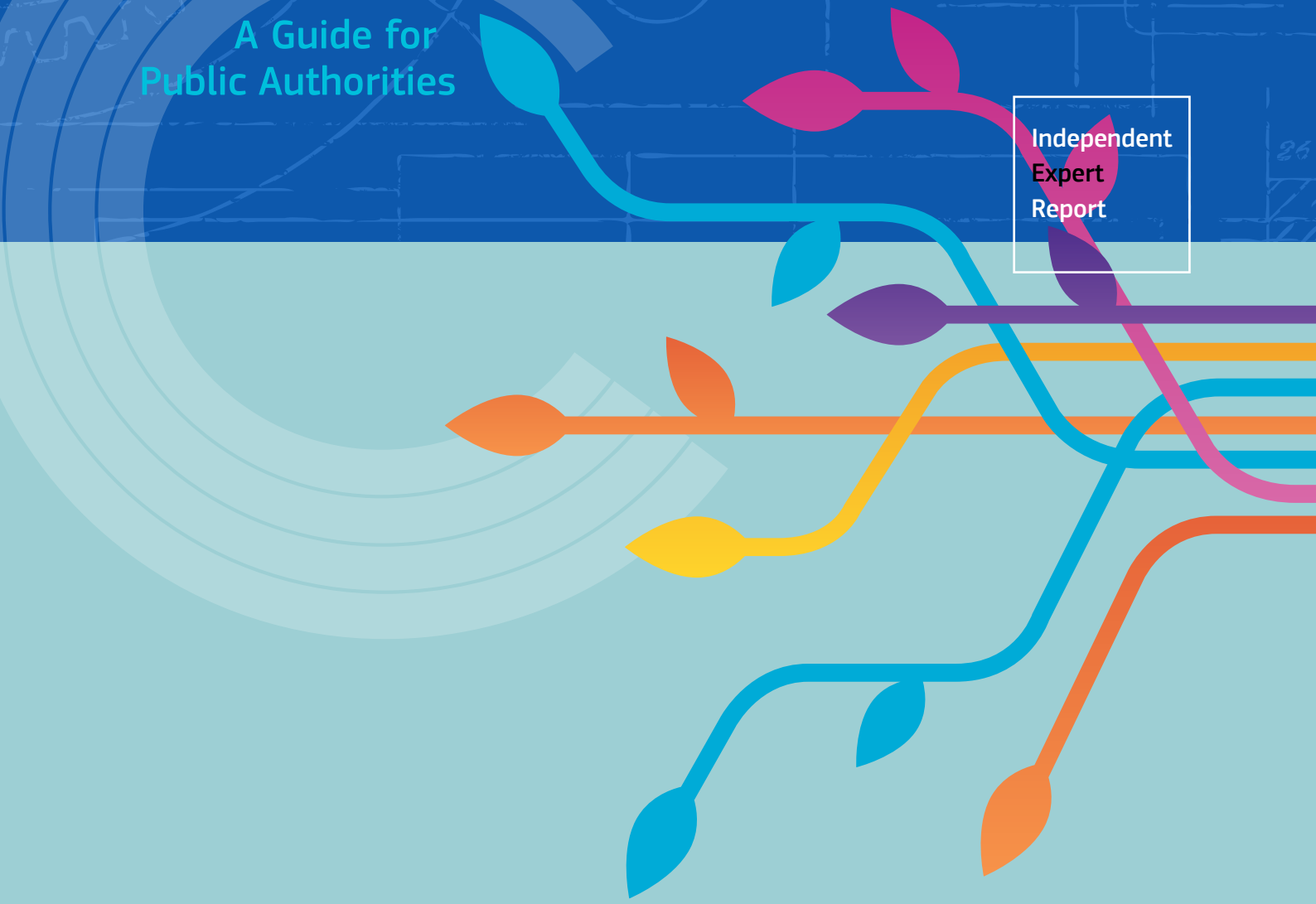
European Commission

INCENTIVES TO BOOST THE CIRCULAR ECONOMY

A Guide for Public Authorities

Independent Expert Report



Research and Innovation

Incentives to boost the Circular Economy

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2021

Directorate-General for Research and Innovation
Healthy Planet

EN

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ACRONYMS

AFD	French Development Agency
CAPEX	Capital Expenditure
CE	Circular Economy
CEAP	Circular Economy Action
CEN	European Committee for Standardisation
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EEE	Electrical and Electronic Equipment
EIB	European Investment Bank
EoW	End-of-Waste
EPR	Extended Producer Responsibility
ESG	Environmental, Social and Governance
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GPP	Green Public Procurement
IPCC	Intergovernmental Panel on Climate Change
ISSEP	Institut Scientifique de Service Public
KfW	Kreditanstalt für Wiederaufbau ("Credit Institute for Reconstruction").
LCA	Life Cycle Assessment
LCY	Local Currency
MS	Member State
MSW	Municipal Solid Waste
NPV	Net Present Value
OrPlast	Objectif Recyclage Plastiques
OVAM	Openbare Vlaamse Afvalstoffenmaatschappij
PAYT	Pay-as-you-throw
PEF	Product Environmental Footprint
PEFCR	Product Environmental Footprint Category Rules

PPP	Public Private Partnerships
PRN	Packaging Recovery Notes
PROs	Producer Responsibility Organisations
R&D	Research & Development
RDI	Research, Development and Innovation
SMEs	Small and Medium-sized Enterprises
TGAP	Taxe Générale sur les Activités Polluantes
TRC	Tradable Recycling Credits
TRIS	Technical Regulation Information System
TSC	Taxes and Social Contributions
VAT	Value-Added Tax
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive
NOx	Nitrogen Oxides
PE	Polyethylene
PET	Polyethylene Terephthalate
PP	Polypropylene
PS	Polystyrene
PVC	Polyvinyl chloride
SOx	Sulfur Oxides

EXECUTIVE SUMMARY

The transition towards a circular economy requires systemic changes that only powerful, disruptive and steadily implemented measures can trigger. While the European Union has taken the lead globally in accelerating that transition, much must be done to bring the economy and society towards a more sustainable path. As highlighted in the Circularity Gap Report 20201, "today, the global economy is only 8.6% circular — just two years ago it was 9.1%. The global circularity gap is widening." The Expert Group on Circular Economy Financing, set up by the European Commission, has identified in its initial report on "Accelerating the transition to the circular economy", that incentives are vital to overcome barriers stemming from linear models.

Incentives aim at addressing market failures that prevent or delay the transition towards circular products, services and solutions. They play an instrumental role in pricing negative externalities, steering markets towards sustainability and driving behavioral changes. In addition, awareness-raising can be a powerful tool to complement incentives by empowering consumers to make more sustainable choices which, in return, may stimulate the market to offer more sustainable products and services at affordable prices. Incentives have the ability to create value, de-risk investments and improve the competitiveness of value chains that bring net environmental benefits when compared with linear economies. They also yield benefits to the economy and society.

This guidance document aims at supporting public authorities in identifying the most suited incentive or combination of incentives to speed up the transition towards a circular economy at EU, National, Regional or Local level. The list of incentives is non-exhaustive and some of them have been implemented in Member States at the forefront of this transition. As these incentives aim at addressing different market failures or barriers; their type, combination, associated costs and infrastructure of implementation, temporality or scope; their relevant level of enforcement will inherently vary.

This report does not, however, address fully the role of incentives delivered through blended financial instruments, e.g. financial guarantees or blended finance where public investors take higher risk of investment. These instruments are directed towards investors and aim at increased investment in desirable economic activities. The expert group felt that this category of incentives should be described in a separate report addressed specifically to the investment institutions.

[1] https://www.circularity-gap.world/2020

1 Context

As analysed in the Report "Accelerating the transition to circular economy"[2] of the Expert Group on Circular Economy Financing, the transition towards a circular economy is hindered by the presence of "linear" regulations, markets, investment tools and practices. These obstacles prevent the economy from reflecting the true cost of negative environmental externalities in the market price of goods and services.

The EU remains too dependent on a throughput of new materials, extracted, traded and processed into goods, and finally disposed. This has a negative effect on the environment, biodiversity, and health. It makes the EU too dependent on resources coming from outside Europe. Only 12% of the materials it uses come from recycling[3]. The current pattern of "take-make-use-dispose" does not provide producers with enough incentives to make their products more circular. Many products are designed to be functional for a short use phase, cannot be easily reused, repaired or recycled, and many are made for single use only[4]. There is a need to further strengthen or either develop incentives and requirements to ensure that all products placed on the EU market become increasingly sustainable and stand the test of circularity.

Action is needed and is taken on EU level. In the new Circular Economy Action Plan (2020)[5] , the European Commission has announced a variety of actions it will undertake over the next few years in order to work towards a climate-neutral, resource-efficient and circular economy. It aims to reduce the amount of waste and create more value. For instance, it will work on empowering consumers and public buyers in their choices for more sustainable products.

Member States, Regions and local authorities also have an important role to play to accelerate the transition to a circular economy in addition to the work that is being done at EU level. Well-structured incentives on all policy levels can help to correct the linear distortions, improve the business environment and enable circular value chains and business models to become increasingly competitive in the market place and, in turn, attract the interest of investors and financiers.

The transition towards a circular economy requires investments in eco-design/design/ production for re-use and recycling, infrastructure for reuse, separate collection, sorting and recycling facilities, innovative business models and the deployment of tools, applications and services enabling circular economy strategies.

Incentives can take the form of various instruments, be it financial or not, depending on the market failure they aim at tackling. Hence, they can exhibit various features. They must in general be stable over time to limit the risk of loss of profitability. However, some incentives are also temporary by nature since their main goal is to speed up the transition towards a circular economy by reaching, for example critical volumes enabling economies of scale.

Financiers will be more attracted to projects for which incentives actively contribute to de-risking such projects. They will consequently invest in tools to assess and finance these projects.

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[2] European Commission-DG RTD, "Accelerating the transition to the circular economy – Improving access to finance for circular economy projects", March 2019

[3] COM(2019) 640 final, The European Green Deal, December 2019

[4] COM(2020) 98 final, Circular Economy Action Plan: For a cleaner and more competitive Europe, March 2020

[5] COM(2020) 98 final, Circular Economy Action Plan: For a cleaner and more competitive Europe, March 2020

2 Objective of the report

The objective of this report is to inform and provide guidance to Member States, regional and local authorities about potential incentives that they could implement to stimulate the transition to a circular economy. Activities contributing to the circular economy are outlined in the independent expert report "Categorisation system for the circular economy – A sector-agnostic approach for activities contributing to the circular economy"[6] .

The analysis of incentives in this report and the annex provides:

- An identification of incentives to foster the circular economy in relation to barriers currently in place.
- A transversal analysis that guides authorities in their priority setting amongst the incentives proposed.
- For each incentive:
    - A description of the incentive and an analysis of the way it encourages circular economy.
    - An identification of successful experiences in the EU and/ or of relevant studies.
    - An analysis of key factors of success and barriers / conditions to succeed.
    - An appreciation of the expected effects.

EU policies and incentives are described so that the connection between EU-wide public policy instruments and local instruments can be made. However, EU instruments are not the main focus of this study.

Presently, only 12% of materials used in industry comes from recycling[7]. Hence, a number of incentives relate to waste management and recycling activities given their instrumental role in speeding up the transition towards a more circular economy by increasing the uptake of recycled materials in manufacturing and substituting primary materials. The wider focus on incentives focusing on these activities as well as on the repairability, re-usability or recyclability of products to bridge their design and end-of-life phase reflects the diversity of available instruments (incentives) in this field and their maturity. These incentives are also instrumental to enable consumers' preferences for sustainable products.

Making the economy (more) circular also means more fundamental changes where the needs are not expressed as material needs, but as functional needs. This translates for instance in new business models where services replace product ownership, for instance.

This report expands on the report "Accelerating the Transition to the Circular Economy", published in 2019. In particular, it provides more practical recommendations of incentives that could be implemented by non-financial policy makers. Financial incentives are briefly touched upon within this report, however further work needs to be conducted to identify the optimal instruments.

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[6] Schempp, C., Hirsch P., Categorisation system for the circular economy – A sector agnostic approach for activities contributing to the circular economy, Independent expert report, Directorate-General for Research and Innovation (European Commission), March 2020.

[7] COM (2019) 640 final, The European Green Deal, December 2019

3 Methodology

This guidance document was elaborated using:

- Desk research of relevant documents and specific successful existing applications of incentives.
- Analysis by the authors.
- Several discussions with the small taskforce and the extended taskforce group on incentives for the Platform on Circular Economy Financing.
- Input and feedback from the Informal Expert Group on CE Finance.

4 Understanding the barriers to the Circular Economy

The relatively low price of raw materials whose negative externalities are not priced by commodity markets, allows for the linear economy to be profitable for many actors, products and materials. The costs associated with the recycling of various waste streams is often higher than the price of primary materials thereby distorting competition. Incentives are necessary to address these distortions and make the circular economy profitable.

The reasons why Circular Economy has not developed as quickly as expected, is linked to multiple barriers that are explained in the table below which also illustrates the correlation between different categories of incentives and specific market barriers.

Category of Incentive	Barriers to CE Finance	Main barriers/market failures addressed	Other relevant barriers/risks
Economic/ Financial	Level playing field	• Resource price distortion (e.g. cost of secondary materials vs primary materials) • Limited access to capital • Transaction costs/project granularity and fragmentation	• High initial costs • Affordability constraints • Financing risks • Market and demand risks
Technological	Lack of product longevity in business models	• Early-mover externalities due to low diffusion of technologies and underdeveloped supply chains and distribution networks • Lock-in effects (due to dominant, fully depreciated linear technologies/products) • Innovation externalities (i.e. innovation policies and R&D investments don't factor 'linear' spillovers)	• Risk perceptions associated with new technologies (including uncertainty about future benefits of circular technologies) • Availability risks (more fragmented supply chains compared to linear business models) • Projects heterogeneity (circular economy requires a novel business taxonomy)
Policy/Regulatory	Lack of integration of the costs of externalities	• Environmental externalities not priced in *'tragedy of the commons'* (i.e. inadequate regulation of green public goods and lack of perception of scarcity) • Fiscal distortions (e.g. supporting mining operations and production of primary materials)	• Lack of or inadequate regulatory frameworks • Lack of or inadequate implementation or enforcement of policies • Permiting and tendering risks (circular economy models tend to have longer implementation time) • Volatile policy and regulatory context
Information and awareness	Lack of financial knowledge about the circular economy	• Hidden costs of linear practices • Difficulty in appraising the quality of the investmenst • Imperfect information / lack of awareness	• Lack of performance data and tools • LCA analysis not available
Capacity	Insufficient value chain collaboration	• Lack of relevant skills/ experience (especially in SMEs) • Limited understanding of co-benefits (e.g. improved business resilience)	• Lack of common metrics and targets • Circular benefits not shared
Organisational/ Institutional	Insufficient action by first movers	• Organisational set-up: lack of internal decision making processes, accountability, targets, etc • Percieved low return of circular economy investments	• Waek corporate governance standards • Lack of long-term vision • Linear risks not factored in business decisions
Behavioural/ Cultural	Insufficient market participation by consumers	• Split incentives (principal-agent problem) • Entrenched cultural norms/social barriers (e.g. individual ownership vs service models)	• Behavioural inertia (e.g. when environmental benefits of circular models are not clear) • Irreversibility and the option to wait

Table 1: Categorisation of market failures/barriers and links with incentives

Focus on Environmental awareness and behavioural change to support ambitious product policy

It is estimated that over 80% of all product-related environmental impacts are determined during the design phase of a product. Hence, design requirements to improve the circularity of products placed on the market are essential. The New Circular Economy Action Plan[8] makes of A Sustainable Product Policy Framework a priority for Designing sustainable products which among key features are easier to repair, recycle or which incorporate recycled content but also measures aiming at countering premature obsolescence, taking advantage of digitalisation to introduce product passports or banning the destruction of unsold durable goods. A sustainable product policy legislative initiative is foreseen to cover the aspects which are not yet addressed by the existing policy instruments already regulating product design in the European Union.

Next to policy and regulatory changes to systematically improve products' design, manufacturing and placing on the market for circularity, empowering consumers to make sustainable choices is equally essential. For decades, the consumers have followed the 'take-make-dispose' models in line with 'linear' business models. It is not easy to change such a pattern and move together with business to the circular economy models promoting the 'reduce-reuse-recycle' principles.

A way to compel citizens to willingly accept and even seek out more sustainable consumption patterns is to raise their environmental awareness, education and competencies. To increase sense of personal responsibility and encourage behavioural change, all educational levels from early age through lifelong learning need to incorporate the 'green' dimension in curricula. Information campaigns and availability of reliable information on products environmental footprint would improve public awareness about environmental and social benefits of circular products and services to empower citizens in making sustainable choices.

The key importance of changing behaviour is education and awareness raising. The 2020 Circular Economy Action Plan recognises this and is committed to promote under the European Social Fund Plus that investment in education and training systems, lifelong learning, and social innovation. The circular economy will be promoted in the context of updating the Skills Agenda, launching a Pact for Skills with large-scale multi-stakeholder partnerships, and the Action Plan for Social Economy. Cohesion Policy funds will help funding circular economy awareness raising, cooperation and capacity building.

The Commission will also propose that companies substantiate their environmental claims using Product and Organisation Environmental Footprint methods. The Commission will test the integration of these methods in the EU Ecolabel and include more systematically durability, recyclability and recycled content in the EU Ecolabel criteria.

Box 1: Environmental awareness and behavioural change

[8] https://ec.europa.eu/environment/eussd/smgp/dev_methods.htm

5 Definition and Types of Incentives

In this report, incentives are defined as any type of instrument implemented by financial or non-financial policy makers with the goal to stimulate circular economy. The incentives presented in this report can be either temporary (especially, when they are designed to provide a price signal to stimulate market creation or support early movers), or permanent (when they are integrated in laws, regulations and standards in order to ensure level playing field and eliminate distortions). Incentives should be proportionate to the market failures that they address, in order to minimise their cost and maximise return. Non-financial policy makers, such as Members States or regional authorities, can introduce incentives through:

- Financial instruments
- Non-financial instruments
  - Market based instruments,
  - Non-market-based instruments,
  - Removing normative obstacles.

5.1 *Financial instruments*

Financial policy makers can develop incentives through financial instruments as illustrated in Table 2, which also provides a possible incentives calibration approach based on market maturity and the availability and cost of finance.

Support	High Incentives	Medium Incentives	Low Incentives	No Incentives (Except Rdi & Priority Activities)
Market context	• Absent market • No financing available	• Market creation (piloting & demo) • Finanicng not widely available or very expensive	• Market accelaration (scaling up) • Finanicng available but risk (and perception of risk) still persists	• Mature market. Risk-weighted financing widely available • RDI finanicng absent/expensive
Instruments	**Prioritation instruments** • CAPEX grants based on NPV • Interest rate/LCY subsidy • Longer tenor or grace periods	**Incentivising instruments** • No-cost partial guarantees (first loss) • Low(er) intensity CAPEX grants • CAPEX grant secured against impact • Guaranteed residual value	**De-risking instruments** • Partial concessional co-financing • Concessional or waived fees • Below market-price guarantees • Deferred payment (success fee) • Interest rate secured against impact	For **research, development and innovation** only • Risk capital more appropiate For **well-defined priority activities** • CAPEX grants combined with concessional loans/guarantees
Calibration	• To incentivise the uptake of high impact circular technologies and practices • Linked to use of proceeds	• 'Smart' design where the incentives are calibrated to the monetised value of the environmental externalities • Linked to the valuation of impact (e.g. level of circularity)	• To promote systemic transformation by offering support linked to achievement of specific milestones (e.g. with regards to business practices, incorporation of linear and ESG risks into strategies, management tools and investment decisions)	• Priritation of technologies/ practices with: ✓ low market adoption ✓ slow uptake ✓ high potential for market transformation

Table 2: Financial incentives and calibration approach

Table 2 is an illustration of how financial incentives could be structured. It reflects the different level of market barriers and market conditions. Further work is necessary to optimise the use of incentives in financial instruments that keeps the proportionality between risk, reward and externalities.

To achieve further impact and reduce the risks of distortion, the approach proposed can be enhanced by introducing higher degree of conditionality that is proportional to the level of the incentives. This will ensure that incentives are proportionate to the desired objective in terms of impact, magnitude, scope and time. This is particularly relevant for economic incentives. In fact, the higher the level of incentives provided, the more rigorous the control mechanisms need to be. Examples include: increased level of reporting, defined timeline for implementation, minimum level of organisational governance introduced, incentives linked to performance standards. Increasing level of conditionality in turn, enhance accountability of beneficiaries and ensure an efficient use of the resources committed.

Typically, the economic, environmental and social return of any incentive should exceed its cost within a reasonable timeframe.

To achieve this overarching objective the following criteria can be considered:

- Incentives should aim at achieving proven benefits in terms of circularity while fulfilling the following conditions as far as possible: be technology neutral provided that it is environmentally sustainable and flexible, allowing for adjustments reflecting changing business and policy conditions to reduce possible market distortions and ensure a level playing field among market players;

- They should be proportionate to the desired outcomes (see section on Objectives) and based as far as possible on market instruments to reward optimal allocation of resources.

- They should prevent the emergence of vested interests and reduce the extent of unwanted trade-offs[9].

- Incentives should reflect local context and particularly, different policy/regulatory environments and levels of market maturity.

- Incentives should mitigate as much as possible free-rider effects and hence may evolve over time as cost of technologies decline and competition increases.

In addition, incentives should be designed to maximise impacts and result, as much as possible, in multiple benefits for entire circular value chains, crowding-in private finance and promotion of transformative business models and practices, rather than focusing on small incremental improvements based on existing practices. These can also be achieved through a combination of different incentives.

[9] Unwanted trade-offs can be prevented through a no regret test: the design of incentives should be based on a 'system' approach and include the analysis of possible upstream effects (i.e., incentives preventing other circular practices to emerge) and downstream effects (i.e., incentives that result in higher environmental footprint in other value chains which are part of the same system).

5.2 *Non- financial policy instruments*

- **Market based instruments**, to convert environmental benefits into an economic return

Market based instruments price externalities based on objective environmental impacts (GHG[10] / Energy, Natural Capital, Biodiversity etc.) to reward circular value chains. It is an instrument Robert N. Stavins[11] defines market-based instruments as "regulations that encourage behaviour through market signals". He classifies them within four categories:

1. charge systems: effluent charges (e.g. carbon tax), deposit-refund systems, user charges, insurance premium taxes, sales taxes, administrative charges, and tax differentiation (e.g. EPR[12] eco-modulation, Lower VAT on green products, on repairing activities);

2. tradable permits: credit programs (e.g. Tradable recycling credit schemes) and cap-and-trade systems;

3. reducing market frictions: market creation, liability rules, and information programs.

4. government subsidy reductions (to lift restrictions on circular products and services and reduce/remove subsidies on mining, fossil fuels etc).

[10] GHG = Greenhouse gases

[11] Stavins, Robert N. "Experience with Market-Based Environmental Policy Instruments." In Handbook of Environmental Economics, edited by Karl-Göran Mäler and Jeffrey Vincent, I:355–435. Link: https://media.rff.org/documents/RFF-DP-01-58.pdf

[12] Extended Producer Responsibility

Environmental Externalities

Pricing environmental externalities is among the most effective policy tool to correct market failures stemming from linear economies and speed up the transition towards a more circular economy and climate neutrality. A number of incentives in this report precisely aim at pricing environmental externalities.

There is a direct link between the circular economy, climate regulations, taxation and the pricing of environmental externalities. Effective pricing of environmental externalities is instrumental to combat climate change and halt the degradation of air, soil and water quality and the loss of biodiversity.

In relation to climate change, climate regulations are usually based on an analysis of territorial, direct GHG emissions, scientific methodology used by the Intergovernmental Panel on Climate Change (IPCC), for instance the Global Carbon Project. However, territorial GHG emissions do not capture the GHG impact of imports and exports (indirect emissions, captured by GHG footprint methodologies). Focusing only on reducing territorial GHG emissions might lead to delocalising production to replace it by important, or delocalising treatment of waste.

To lower indirect emissions, it is key to reduce the GHG impact of producing material goods[13]- for 45% of total current GHG emissions). To do so, **the circular economy is an important enabler**:

- The positive impact of the circular economy solutions on GHG emissions should be well quantified and identified by European regulators in the carbon budgets. Member States & EU should quantify consumption-based emissions (including imports /exports, instead of focusing only on territorial emissions – IPCC accounting) in their carbon budget, and therefore value the positive impact of solutions that reduce the need to import primary raw materials (by taking into account avoided emissions).
- The EU could promote standardised accounting with science-based consensus on the net GHG impact of waste & circular economy solutions including on how to compute saved emissions. Saved emissions are part of the solutions package to reach both carbon neutrality and the -1.5°C objective (not only reduced emissions and nature-based offsets). Saved emissions is one of the foundations of the circular economy that has yet to be fully recognised within European legislation.
- Ownership of saved emissions should be properly distributed along the value chain, with a large attribution to the circular economy that is producing them through secondary materials and green energy.
- The **Green Deal could finance a carbon price mechanism monetising saved emissions** at a level enabling a real transition to finance, for example, source segregated collection & sorting and stable markets for recycled materials throughout the EU. The carbon price mechanism is not limited only to circular waste solutions; accounting and price should take into account different sectors.
- The European Commission is working on a **carbon border adjustment mechanism[14]** that intends to reduce the risk of carbon leakage. This occurs when companies transfer production to countries that are less strict about emissions. This new mechanism would counteract this risk by putting a carbon price on imports of certain goods from outside the EU. This is certainly **a means to price negative externalities** within Europe and at the same time promote climate efficient and circular value chains.

Box 2: Environmental Externalities

➢ Non-Market based instruments (normative and informative)

- Ban of single-use products when a circular alternative exists.
- Promotion of social inclusion to leverage the ability of disadvantaged groups and ensure broader market participation.
- Design requirements to improve product reparability, re-usability, recyclability or mandatory recycled content for specific product categories, such as packaging for instance.
- Increase minimum legal guarantee period.
- Information to benchmark product circularity.

[13] Ellen MacArthur Foundation, *Completing the Picture: How the Circular Economy Tackles Climate Change*, September 2019

[14] EU Green Deal (carbon border adjustment mechanism) (europa.eu)

➢ **Removing normative obstacles**

- End-of-Waste (EoW): either EU-wide EoW criteria or national EoW criteria which can be mutually recognised by other Member States, to define when waste ceases to be waste and achieves product status in one member state. Harmonised EoW status contributes to the well-functioning of the EU market for secondary raw materials by removing unnecessary obstacles to their cross-border shipment and use; and by rewarding quality of secondary raw materials.

- Ease shipments of waste and secondary raw materials within the EU through harmonised rules evenly interpreted by competent waste shipment authorities across Europe.

- Remove unnecessary technical requirements based on performance of primary materials (both public procurement and technical standards) hampering circular material flows.

- Include procurement criteria rewarding circularity to ensure that more circular products or services have equal chances in tender procedures.

Green Public Procurement (GPP)

Green public procurement (GPP)[15] is an important incentive to leverage the circular economy. Every year, over 250,000 public authorities in the EU spend around 14% of GDP (around €2 trillion per year) on the purchase of services, works and supplies. Ensuring that public expenditures supports the objectives set by the European Green Deal[16] and the New Circular Economy Action Plan[17], requires that public authorities lead by example and support companies investing in circular solutions by facilitating their access to public tenders.

GPP can either be:

- market-based (charge system) by applying equivalence between environmental performance and price, i.e. converting an environmental benefit into a competitive edge. In this case, the impact of a GPP incentive is continuous as it rewards better environmental performance.
- non-market-based (normative) by restricting market access to products that reach a sufficient level of environmental performance: global energy performance, recycled content, long life etc. In this case, GPP has an incremental impact as the incentive reduces its effect as market matures and competition among market players increases. Incremental incentives are typical for a transition phase, as a temporary measure to boost products.

Box 3: Green Public Procurement

5.3 *Different forms of Incentives*

The incentives available to policymakers are typically temporary to accelerate the transition and the uptake of circular business practices:

➢ **Incentives that stimulate value chain collaboration**

- Market-based: favour support (e.g. on R&D) for chain integrated and sustainable projects, e.g. supporting local biodiversity.

- Normative: set up Green Deals and clusters at different levels.

[15] European GPP criteria for a range of product groups: https://ec.europa.eu/environment/gpp/index_en.htm

[16] COM (2019) 640 (final), The European Green Deal, 11/12/2019

[17] COM(2020)98 final, A new Circular Economy Action Plan, For a cleaner and more competitive Europe, 11/03/2020

➢ **Incentives that support first movers**

- market-based: financial support to R&D and existing circular activities, e.g supporting the circular bioeconomy through return of compost from waste to agricultural land with priority purchase of that produce.

➢ **Incentives that empower consumers to select more circular products**

- normative: Stimulate the availability of reliable (LCA, etc) environmental information on products for buyers (citizens and Public Authorities), e.g. through labelling (eco-labelling for truly sustainable product and services, certification on a voluntary or mandatory basis), lower VAT or local subsidies on circular products and information campaigns to raise public awareness about environmental and social benefits of circular products and services to empower citizens in making sustainable choices.

5.4 *Review of Incentives*

Incentives should be **reviewed on a regular basis and phased-out when the market operates effectively**. This typically occurs when:

- The regulatory framework and economic conditions are enabling market players to invest within a reasonably clear and predictable business environment.
- Supply chains are well developed and integrated, technologies widely available and affordable.
- Consumers are well informed and can make rational investment choices.
- Financing is available at scale and easy to secure.

An analytical approach to guide the phasing out of temporary incentives could be based on the level of adoption of specific circular technologies and practices (e.g. minimum share of market adoption, which is considered by policy analysts as the tipping point for most technologies to become business-as-usual). However, in absence of sufficient empirical evidence, more holistic assessments could be necessary, including the qualitative determination of the degree to which the market is operating effectively based on the elements listed above.

6 Ensuring a stable Circular Economy

The main sources of market instability are price variations of energy and primary materials[18] or shocks in demand due to political or legislative changes outside the EU (paper and plastics China National Sword ban, Norwegian proposal under Basel Convention, etc., COVID-19 lockdown). Incentives should ensure that the circular choice is always the best financial choice as well to avoid market regression to linear products and raw materials.

➢ **Impacts of price variations can be mitigated through:**

- Market regulation (e.g. mandatory recycled content, tradable recycling credits) in order to transfer the potential chain deficit to producers using primary materials and in order to internalise in prices the positive externalities and steer the demand for recycled materials, sustainable products and services.

- Safeguarding profitability even at low prices of energy and primary materials by:

  - Strong incentives such as mandatory recycled content obligations.

  - Temporary mechanisms compensating overly low market prices impacting secondary raw materials, circular products or services.

  - Support to scale up of operations and reduce operational costs through economies of scale.

➢ **Shocks in demand can be mitigated through:**

- Incentivising material recovery from waste as domestic demand is less likely to endure sharp changes stemming from unilateral decisions taken by non-EU countries (e.g. Chinese import ban on waste and secondary raw materials).

- Favouring contract duration and conditions that contribute to de-risk investments; in particular contracts from:

  - EPR schemes with recycling operators.

  - Green public procurement to direct public expenditures to sustainable products or services.

- When Public Authorities or EPR schemes put recycled materials on the market, as the price of secondary raw material depends on primary raw material price, it is suggested to:

  - De-correlate the price of recycled materials and the price of primary materials to reward environmental benefits and limit the risks of buyers.

  - Use counter cyclical policy instruments[19]:

    - When primary material prices are high, sales from recycled materials cover (better) the cost of the collection-sorting-recycling chain. Reserves can be constituted during such periods by EPR Schemes in particular.

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[18] EIT Raw materials pushes to developing raw materials into a major strength for Europe, https://eit.europa.eu/our-communities/eit-rawmaterials

[19] This is not included in the table of incentives but has been referenced in the conclusion of this report.

- When primary material prices are low, sales from recycled materials far from cover the cost of the collection-sorting-recycling chain. Reserves can be used during such periods to cover the price gap between primary and recycled materials.[20]

Implementing the above suggestions will help protect the Circular Economy from shocks/threats to its stability.

7 Relevant incentives for member state, regional and local authorities

This table provides an indicative list of incentives that can be implemented at Member State, regional or local level. The number of the incentive is linked to the number of the incentive in the annex. Incentives 3, 5, 14 and 18 are not part of the table below as they should preferebly be implemented at EU level. Incentives by definition can be implemented alone or cumulatively in order to achieve the desired objectives. The most relevant levels of competence are provided in the table as well:

[20] Price setting needs to take into consideration local constraints and circumstances, and be proportionate in time and magnitude to cover the gap with commodity prices.

Incentive	Action	Description	Member State	Region	Local
1.	End of waste: Facilitate end-of waste procedures and mutual recognition	Organise mutual recognition procedures with other Member States / regions.	X	X	X
2.	Render standards more circular	Standardisation bodies and mandates must favour the use of recycled materials, products' reparability, reusability and recyclability.	X	X	
4.	Promote social economy in activities fostering the circular economy	Promote social economy in the collection, sorting of some specific waste streams (textiles, furniture) and repair.	X	X	X
6.	Favour R&D support for value chain integrated projects and investment in new circular activity	Include chain integration and circularity in criteria to access R&D financing.	X	X	Local authorities can act as test bed
7.	Set up Green Deals and clusters at different levels	Set up Green Deals and circular clusters to implement best practices and allow fast changes with less administrative burdens that can serve as a basis for implementation a broader scale (national or European).	X	X	
8.	Favour environmental labelling and certification	Promote relevant labels on official websites, like the European Ecolabel. The assessment work of relevant ecolabels has already been performed by some Member States (as in France) [21].	X	X	
9.	Communication (on repairing products)	Promote relevant repairing activities on official websites[22].	X	X	X
10.	Material Taxation	Taxation related to input and consumption materials. This is a member state competence but that could be harmonised at EU level.	X		

[21] https://www.ademe.fr/100-labels-environnementaux-recommandes-lademe

[22] https://www.repairtogether.be/ https://repaircafe.org/en/foundation/

Incentive	Action	Description	Member State	Region	Local
11.	Modulation of EPR fees[23]	Require the systematic eco-modulation of fees from EPR schemes on their next approval or adapt it if possible[24].	X		
12.	EPR: Adapting contract duration and conditions	Request adapting contract duration from EPR schemes on their next approval procedure or adapt it if possible in order to create a better level playing field between primary and secondary raw materials.	X		
13.	Green public procurement: apply environmental (circularity) criteria (global environmental performance, recycled content, long life)	Public procurement accounts 14% of GDP[25]. If those purchases are green, a significant proportion of the products (and services) become green. Easy to implement: • apply criteria from the European Commission[26], • require/favour the EC Ecolabel, • request an impact calculation when a PEFCR[27] exists	X	X	X

[23] Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste

[24] http://www.ecoemballages.fr/sites/default/files/files/resources/tarif_2018_citeo_septembre_2017.pdf

[25] https://ec.europa.eu/growth/single-market/public-procurement_en / "Public Procurement Indicators 2017" https://ec.europa.eu/docsroom/documents/38003

[26] https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm

[27] https://ec.europa.eu/environment/eussd/smgp/PEFCR_OEFSR_en.htm

Incentive	Action	Description	Member State	Region	Local
15.	Landfill/incineration ban/tax	Landfill tax is already applied throughout the (mainly western) EU. It is efficient as it makes circular circuits more competitive. Incineration taxes are less widespread and are lower. Indicative values for MSW [28]: • 60 to 100€/t for landfill • 10 €/t for incineration. Taxing disposal activities can be effective if it is applied in the right way according to the situation in each Member State. However overly burdensome financial pressure on all disposal activities can financially burden recycling activities that depend on disposal activities for the treatment of residual waste. Therefore lower (zero) tariff should be applied to non-recyclable residues from sorting/recycling operations to ensure that taxation applies to the untreated waste which should have been recycled.	X	X	
16.	Waste producers pay the full waste management cost	The "PAYT"[29] system puts pressure on waste producers to avoid producing unsorted waste. It can be applied on containers or bags, based on volume and/or weight, possibly with some free removals in the starting phase to increase public acceptance. It is very efficient when coupled to advanced selective collection[30]. PAYT is typically applied to household and household-like waste (waste from small commerce). It is generally already applied to industrial and commercial waste. Potential improvement for non-household waste includes applying PAYT to waste generated by public services (hospitals, schools) and controlling/charging access from private companies to civic amenity sites. It requests control by the Public Authorities to avoid illegal dumping.	X	X	X

[28] MSW = Municipal Solid Waste, (see graphs 55 and 56)

[29] PAYT = Pay-as-you-throw

Incentive	Action	Description	Member State	Region	Local
17.	Lower VAT on green products and services	The lower VAT reduces the price of product or service to the final consumer and may increase demand or consumption of the product or service. The decision on VAT rates is for the national authorities and sometimes approval from the European Commission is also required. It has been accepted for repairing activities[31].	X		
19.	Tradable recycling credit schemes	This TRC mechanism pulls the demand for recycled materials and rewards in price the environmental benefits of their use which the market fails to value.	X	X	
20.	Subsidies	This incentive aims to stimulate private actors to change towards more circular behavior and activities, by providing direct or indirect financial reward. Subsidies can turn a circular economic activity that is not economically viable into a profitable activity therefore subsidies can have significant and immediate effect but there is also the risk of distortion of the market. Subsidies have to comply with the State Aid Rules. An example of the circular economy subsidy is subsidy schemes for recycling industry or local repair services in some member States.	X	X	X

[30] https://www.euractiv.com/section/climate-environment/news/pay-as-you-throw-cuts-waste-and-encourages-recycling/

[31] http://www.rreuse.org/wp-content/uploads/RREUSE-position-on-VAT-2017-Final-website_1.pdf

- **Some Incentives should preferably be implemented at EU level and are thus less relevant at Member State, regional and local authority level.**

They are not part of the above table. These are:

- Ban products when a more circular alternative exists (Incentive #3)
  - Although such actions can be implemented at Member State level, such unilateral measures would restrict free movement of goods and should therefore be preferably introduced at EU level to avoid the fragmentation of the internal market.
- Increase guarantee period (Incentive #5)
  - This action especially tackles manufactured goods and EEE mostly produced outside EU. An EU-wide extension of the guarantee period is easier to implement and to control as manufacturers will more surely adapt if the whole EU market is concerned.
  - Extension of the guarantee period at Member State level is difficult to implement for internet purchasing because a shorter guarantee period makes the product cheaper and therefore more attractive to the consumer.
  - Applied at EU level, this action also allows for economies of scale to control online purchase.
- Material Taxation (Incentive #10)
  - Besides market-based instruments, environmental taxation on products (such as lower VAT for circular products) has a direct effect on price.
  - At European level, taxation, be it direct or indirect, is at best a shared competence between the European Union and Member States and in most instances an exclusive competence of Member States. There are examples at Member State level of environmental taxation. In 2018, the governments in the EU collected environmental tax revenue of EUR 324.6 billion. The value represents 2.4 % of the EU gross domestic product (GDP) and 6.0 % of the EU total government revenue from taxes and social contributions ('TSC')32. Key successful environmental taxes include: plastic bag levy on plastic bags at the point of sale, landfill tax, tax on nitrogen (NOx) – a powerful pollutant linked to acid rain and respiratory problems, etc.
  - However non-harmonised tax rates may have an impact on consumers' behaviour who can take advantage of them through cross-border purchases. In this case, the most relevant level to raise awareness and promote taxation that incentivises circular products and services is the European one. At this level, using the tax revenues to subsidise circular activities that have positive environmental externalities in order to scale up the EU market for those activities and ensuring a level playing fields, would be beneficial.

[32] Eurostat statistics https://appsso.eurostat.ec.europa.eu

- Mandatory recycled content (Incentive #14)

    - As highlighted in the new Circular Economy Action (CEAP), increasing recycled content in products would contribute to a sustainable product policy framework by stimulating the demand for materials from recycling. Since products are standardised throughout the world and benefit from the free movement of goods, recycled content requirements should be set at EU level to be identical in all Member States.

- Addressing waste exports from the EU (Incentive #18)

    - To favour treatment of waste within a Member State, the right combination of incentives needs to be put in place to create or boost secondary raw materials' markets. The incentives could be: recycled content legislation for certain products, extended guarantees for circular economy projects, Green Public Procurement, market or fiscal-based instruments pulling the demand for secondary raw materials.

    - Addressing exports of untreated waste from the EU: the European Commission announced in the new Circular Economy Action Plan[33] that it will aim at restricting exports of waste that have harmful environmental and health impacts in third countries through the review of EU rules on waste.

    - Actions on product design, quality and safety of secondary materials and enhancing their markets will contribute to making "recycled in the EU" a benchmark for qualitative secondary materials. Reaching such a goal requires as a pre-requisite the creation of a well-functioning EU market for secondary raw materials, which is another overarching objective of the new Circular Economy Action Plan in which incentives have a key role to play to pull the demand for secondary materials in Europe and de-risk investments.

➢ **EU Financial instruments as incentives**

Dedicated circular economy focused financial instruments can play a significant role in scaling-up investments in CE projects and activities. There are several examples of the effectiveness of well-designed financial instruments in supporting policies and standards in the creation of favourable market conditions for sustainable businesses. The role of incentives in this context is critical: empirical evidence coming from, for example, climate finance shows how blending concessional funding (e.g. in the form of first loss-guarantees, discounted parallel loans) with commercial finance, can address critical market barriers (e.g., first mover externalities) and catalyse private sector capital (e.g., from the capital markets).

The transformational potential of blended finance instruments could be further enhanced through the integration of circular economy considerations in the design of programmes linked to existing and forthcoming EU financial instruments (e.g. Invest EU). Considerations for an EU level guarantee fund should also be explored.

Further work is required in this area as this topic is not addressed in this report. It would require a broader consultation with commercial financial institutions and multilateral and bilateral development organisations operating in the EU (e.g., EIB, EBRD, KfW, AFD, national development banks). We recommend this being a dedicated future work stream of the Expert Group.

[33] Communication on A new Circular Economy Action Plan, European Commission, 11 March 2020.

- **Circular-economy-related disclosures in financial and non-financial reporting**

Regulatory developments ongoing at EU level regarding circular economy related disclosure (including in the taxonomy regulation[34]) should pave the way for local implementation for local disclosure incentives.

8 Examples of demonstrated incentives

The table below summarises incentives that have been applied at Member State, regional and local levels. Detailed information about each incentive can be found in the Annex. The table also provides information on where incentives have been implemented and it contains some feedback on the functioning of these incentives, provided by the expert group members.

[34] Proposal for a regulation of the European Parliament and of the Council on the establishment of a framework to facilitate sustainable investment COM (2018)0353 – C8-0207/2018 – 2018/0178(COD))

	Action	Demonstrated	Comments
1	End of Waste: Facilitate End of Waste procedures and mutual recognition	Already largely applied in many Member States: Austria, Belgium, Italy, Spain, Germany, The Netherlands, Poland at different levels	This kind of incentive is useful for specific waste flows such as wood, paper, tyres, etc. While national end-of-waste criteria should be promoted, harmonised or mutually recognised end-of-waste criteria remain instrumental to the well-functioning EU market for secondary raw materials.
2	Render standards more circular	Standard development and revision are common practice in Member States.	Standards can hamper or preclude circular solutions or, to the contrary, fuel investments into more circular operations, products or services. They play an important role for market operators in levelling the playing field.
4	Promote social economy in activities fostering the circular economy	Already largely applied.	For instance, repair and reuse shops operate both on a social basis and give work to unemployed/disabled people. Repaired, functionally and technically approved used products such as household devices enable the « second-hand-market » for low-income sections of the population, who normally cannot afford to buy such products.
6	Favour R&D support for value chain integrated projects and investment in new circular activity	To be integrated in existing EC assessment procedure.	
7	Set up Green Deals and clusters at different levels	Already applied in The Netherlands, Belgium, France	This kind of incentive can be useful for some specific projects with R&D but not necessarily within a global context.
8	Favour environmental labelling and certification	Applied by the EC and MS	Instrumental to empower sustainable choices by consumers. Robust methodology underpinning environmental labelling is equally important to guarantee sound claims.
9	Communication (on repairing products)	Applied in many MS	This kind of incentive is instrumental to keep products longer in use. Yet, several issues still exist such as: guarantee, insurance, waste status, etc.
11	Modulation of EPR fees[35]	Already applied in France, Belgium, Italy and the Netherlands.	It is quite efficient provided criteria are properly set to achieve an effective modulation. However, it does not cover all kinds of waste since EPR is not applicable to all products.

[35] Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste

	Action	Demonstrated	Comments
12	EPR: adapting contract duration and conditions	Applied in Belgium and France	Enable to de-risk EPR contracts for recyclers from raw material price volatility and enhance predictability needed to invest. Long term indexes for secondary raw materials would enable the predictability of secondary raw material prices over the long term and therefore enabling the EPR schemes to implement long term contracts.
13	Green public procurement: apply environmental (circularity) criteria (global environmental performance, recycled content, long life)	Already largely applied	Very efficient if properly applied to ensure that public expenditures support circular products and services.
15	Landfill/ incineration ban/tax	Already largely applied	Efficient but not on its own as it will need to be combined with another incentive for full circularity.
16	Waste producers pay the full waste management cost	Already applied in some Member States such as Belgium, Germany, Austria, Bulgaria,	This a requirement under the Waste Framework Directive (art 8a), respectively this will be the case for all Member States after the national transposition of the Directive.
17	Lower VAT on green products and services	Applied in Sweden	This can be seen as an EU initiative in some Member States.
19	Tradable recycling credits schemes	Applied in the UK	This incentive succeeded in meeting EU targets at a very low cost compared to other member states. It should be as part of the work in the new Circular Economy Action Plan.
20	Subsidies	Applied in various Member States	As an example: the OrPlast system ("Objectif Recyclage Plastiques") in France aims at financially supporting the integration of recycled materials by plastic converters or any industry transforming raw materials into products.

Since incentives aim at correcting different market failures or obstacles hampering the transition towards a more circular economy, a number of them are more efficient when used in combination. For instance, incentives which increase the price of final disposal (e.g. tax on landfill and, as applicable, on incineration) to support the implementation of the waste hierarchy and incentives that stimulate the demand for recycled materials (recycled content obligations, tradable recycling credits) or ease market access and reward quality (end-of-waste criteria) contribute to a well-functioning EU market for secondary raw materials.

9 Make the assessment work of financiers easy

Financiers pursue investments that optimise the balance between risk and return. Often, in the case of circular economy investments, the tools and analytics used for assessing risks and rewards are not available or are insufficient.

Financiers (e.g. EIB, national promotional banks and a number of commercial banks) are increasingly taking steps to guide and evaluate adequately circular economy projects. Financiers should capitalise on this early work and accelerate their knowledge and understanding of the opportunities associated to circular economy investments. The analysis of circular economy projects requires specific performance indicators and parameters that need to be incorporated into the financial structures and models used in financial analysis. This requires financial organisations to acquire the necessary knowledge and introduce adequate capacity in their credit processes.

Specific measures are necessary to speed-up this process and support the ability of financiers to evaluate circular projects. In particular, public authorities could accelerate awareness raising by:

- Providing support to the development of project assessment tools, including in the assessment of the environmental benefits and associated business opportunities.
- Developing guidance documents, illustrating the risks of linear business models (e.g. associated with the availability and cost of raw input materials) and the benefits of investing in circular models.
- Provide knowledge about access to financing tools at local, national and EU level.
- Provide examples of circular Public Private Partnerships and successful projects.

10 Conclusion

The EU remains too dependent on a throughput of new materials, extracted, traded and processed into goods, and finally disposed. This has a negative effect on the environment, biodiversity, and health. It makes the EU too dependent on resources coming from outside Europe. The current pattern of "take-make-use-dispose" does not provide producers with enough incentives to make their products more circular. Many products are designed to be functional for a short use phase, cannot be easily reused, repaired or recycled, and many are made for single use only.

There is a need to further strength–hen or either develop incentives and requirements to ensure that all products placed on the EU market become increasingly sustainable and stand the test of circularity.

The choice and implementation, either alone or in combination, of the incentives presented in this report will very much depend on national or local situations. Often, a balance will have to be struck between different types of incentives, namely:

- Legislative-type of incentives based on taxation or aiming at easing market access for circular materials or products (e.g. end-of-waste statutes) or at rendering products more circular through eco-design.
- "Soft" instruments, such as green deals to implement best practices or purely financial instruments.
- Permanent incentives, such as a landfill tax, and temporary incentives, such as dedicated loans.
- "Breakthrough" type of incentives, such as tradable recycling credits, and less bold incentives on which the feedback is more important.
- "Pull" incentives, to stimulate the demand for circular materials when existing market forces are not sufficient, and "push" incentives, making circular materials more available, be it in terms of quality and quantity, or products more sustainable.

It is for Public Authorities, first and foremost, to assess the obstacles to the transition towards a more circular economy and, based on that assessment, decide upon the implementation of the applicable incentives to address them.

The widespread introduction of incentives in the EU to support the transition to a circular economy is a critical means to effectively scale up circular value chains, technologies and services. Without the necessary incentives, the objectives set by the European Green Deal (notably resource efficiency and climate neutrality) will not be achieved.

Dedicated circular economy focused financial instruments can play a significant role in scaling-up investments in CE projects and activities. The role of incentives in this context is critical: empirical evidence coming from, for example, climate finance shows how blending concessional funding (e.g. in the form of first loss-guarantees, discounted parallel loans) with commercial finance, can address critical market barriers (e.g., first mover externalities) and catalyse private sector capital (e.g., from the capital markets).

The transformational potential of blended finance instruments could be further enhanced through the integration of circular economy considerations in the design of programmes linked to existing and forthcoming EU financial instruments (e.g. Invest EU). Considerations for an EU level guarantee fund should also be explored.

Further work is required in this area and could be a subject of a separate study.

ANNEX: ANALYSIS OF INCENTIVES

Note: the **inclusion of an incentive in this appendix does NOT mean it is recommended.** All main identified incentives were analysed and show advantages and drawbacks. Some are complementary and some are redundant.

1 End of Waste: Facilitate End of Waste procedures and mutual recognition

End of Waste : Facilitate End of Waste procedures and mutual recognition	
Instrument category	Regulation & Standards / Enforcement & Implementation
Context	The lack of certainty regarding the waste or product status of secondary raw materials hampers their market access and ultimately the transition towards a more circular economy. The transposition of End-of-Waste status, as provided by Article 6 of Directive 2008/98/EC in the EU is not harmonised. In the absence of EU wide end-of-waste criteria for many different material streams, some MS set only national criteria, others rely on case-by-case recognition, while some may prefer to use both. While National end-of-waste criteria or case-by-case decisions may support the circular economy locally, the lack of harmonisation between MS hampers the well-functioning of the internal market. As a result, when materials meeting end-of-waste criteria, or case-by-case decisions are set in one MS or region, are shipped to another country, their status (waste or non-waste) is not certain and hence the regime applicable to transboundary shipment is not clear. Lack of coherence in the EU creates large uncertainties for industrials who wish to develop cross-border value chains based on secondary raw materials. [36] [37] In addition, differences in End-of-waste status between MS / regions may create distortion of competition, making in some regions recycling is easier than in others.

[36] European Commission (2016) - The efficient functioning of waste markets in the European Union "The lack of harmonisation on end-of-waste criteria is considered to hinder a free waste market. National end-of-waste criteria can lead to uncertainties for waste operators and reduce their ability to exchange on best practices between their different entities. "
Example for batteries: "EBRA illustrates how lack of EU criteria can distort the way in which recycling efficiencies are calculated. Whether certain fractions are considered as waste or have achieved the nationally set EoW status, has a large impact on the calculation of recycling efficiencies. For crossborder working industry actors it is difficult and time-consuming to obtain a EoW status for each Member State applying national procedures. Market distortions occur when it is easier for a company in one Member State to achieve recycling efficiency than for a similar company in another Member State"

[37] EuRIC: Recovered paper (EN 643) is considered differently between Member States and sometimes between Regions. For instance, recovered paper meeting EN 643 quality standard is a waste in the Netherlands, qualifies for end-of-waste status in Nord Rhein Rhein Westfalen (Germany), remains a waste in Hessen (Germany) but again qualifies for end-of-waste in Bavaria (Germany). This drastically increases the complexity of transport procedures and costs and act as a disincentive to circular value chains.

Instrument description	**EU level**: 1. **Organising/easing mutual recognition of End-of-Waste (EOW) criteria meeting requirements set in article 6 of Directive 2008/98/CE notified by competent authorities to the European Commission** once they have been approved or modified after comments. 2. **Develop End-of-Waste criteria via implementing acts** based on existing national criteria, as a complementary approach to the development of Regulations, in accordance with article 6 of Directive 2008/98/CE. 3. **Set new End-of-Waste Regulations** to support the uptake of new streams. 4. **Provides guidelines for Member States** to introduce an official recognition procedure in their national law. 5. **Organise exchange of information on existing national EOW.** This would facilitate transboundary shipments, reduce administrative burden and cost, help massify waste streams and increase recycling rates. **Options 1, 2, 4 and 5** have not yet been implemented **Option 3:** European regulations have been established for Al/Fe scrap, Cu scrap and glass cullet and will soon enter into force for compost (Fertilisers Regulation, enter into force in 2022). **Option 5:** The TRIS platform is a form of information sharing but its scope is partial (only notified decisions) and no analysis / comparison is provided. https://ec.europa.eu/growth/tools-databases/tris/en/
	National, regional or local level: • **Benchmark decisions from other competent authorities via the TRIS platform[38] in order to use the experience for criteria development** NB: TRIS platform only summarises notified End-of-Waste decisions. It does not summarise End-of-Waste decisions that existed prior to 2008 (e.g. in Italy[39]) opinions of official agencies[40] [41]or case-by-case decisions. - Benchmarking October 2019 conducted by ISSEP[42] (Public Agency in Wallonia, Belgium) • **Clarify EOW procedures (via e.g. online description of procedures, helpdesk, training…);** - EA Web Page (Great Britain) https://www.gov.uk/guidance/turn-your-waste-into-a-new-non-waste-product-or-material - Frequently asked questions developed by OVAM (Belgium) https://www.ovam.be/veelgestelde-vragen-en-antwoorden-over-grondstofverklaringen#voorwaarden • **Help the industry understand if they are eligible for EOW** (via e.g. online tools, training, helpdesk); - Web tool "Is it waste?" developed by the British Environmental Agency and RWS in the Netherlands https://www.afvalcirculair.nl/onderwerpen/afval/toetsing-afval/webtoets-afval/ https://www.gov.uk/government/publications/isitwaste-tool-for-advice-on-the-by-products-and-end-of-waste-tests - EOW Training by the Public Service of Wallonie (2019) https://sol.environnement.wallonie.be/home/accueil-dechets/formations-

[38] https://ec.europa.eu/growth/tools-databases/tris/en/

[39] Ministerial Order 5 February 1998, n. 161 12 June 2002 and n. 269 17 November 2005

[40] Opinions of RWS in the Netherlands: https://www.afvalcirculair.nl/onderwerpen/afval/toetsing-afval/

[41] Raw material declaration by OVAM in Flanders (Belgium) https://services.ovam.be/grondstofverklaringen/pages/public.xhtml

[42] https://sol.environnement.wallonie.be/files/Dechets/Formations/Sortiedechets16102019/20191016_Formation_SSD_SP_Benchmarking_Final.pdf

	dechets/archives-des-formations/formation-end-of-waste-2019.html - Opinion for industrial in the Official Journal (France) https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031825201 - English EOW panel providing justified opinions on the waste status (now dismantled) • **Make sure that procedures delays are transparent and complied with;** - Wallonia (Belgium): Maximum delays are introduced in the legislative texts that transpose End of Waste (e.g. in Wallonia 20 days for an answer on the completeness of the file and 110 days for an answer once the file is complete) • **Place past national decisions on End of Waste online;** - Opinions of RWS in the Netherlands: https://www.afvalcirculair.nl/onderwerpen/afval/toetsing-afval/ - Raw material declaration by OVAM in Flanders (Belgium) https://services.ovam.be/grondstofverklaringen/pages/public.xhtml • **Organise mutual recognition with neighbouring countries.** - Discussions between the Netherlands and France to harmonise the interpretation of waste status for struvite as part of the Green Deal North Sea Resources Roundabout http://minisites.ieep.eu/assets/2420/6._Plenary_presentation_North_Sea_Resources_Roundabout_2019.pdf • **Introduce a procedure to recognise decisions taken by other competent authorities** - The Walloon Region has officially foreseen a procedure in its legislation[43] to recognise End of Waste decisions established in another region of Member State (28 February 2019 - Order of the Walloon Government - chapter VIII, article 23). The procedure foresees that the Walloon administration examines the foreign decision if it has been notified to the European Commission. Elements leading to the conclusions that the applicable quality management system has been complied with, must be provided, as well as 500€ payment for the costs of examining the file, and a translation into French.
Lifted barriers	Lack of level playing field
Categorisation / Affected Life Cycle Stage	1.e. Substitution of virgin materials with secondary raw materials and by-products 3.b. Recovery of materials from waste in preparation for circular value retention and recovery strategies (excluding feedstock covered under 3.c) 3.c. Recovery and valorisation of biomass waste and residues as food, feed, nutrients, fertilisers, bio-based materials or chemical feedstock Waste Management
Identified Value Chains	Potentially all

[43] 28 February 2019 - Order of the Walloon Government implementing the procedure for leaving waste status provided for in Article 4ter of the Decree of 27 June 1996 on waste and amending the Order of the Walloon Government of 14 June 2001 promoting the recovery of certain waste (M.B. 05.04.2019)

Description of Impacts	End-of-Waste criteria contribute to ease the circulation of secondary raw materials meeting quality criteria to industries using them as feedstock for their production. They are equally important for large waste streams or small waste streams which are difficult to recycle; sludge oil, struvite, diapers where end-of-waste contribute to the massification of the stream. If more harmonised at EU level, End-of-Waste criteria can ease economies of scale massification which are necessary to decrease recycling costs. Facilitate the cross-border movement of secondary raw materials meeting quality standards. End-of-Waste will contribute to the massification of some waste streams which can more easily reach end-markets and increase recycling rates for waste that is currently poorly recycled because of the waste status. Additional benefits could include lower costs for Industry and MS/Regions due to reduced administrative burden.
Connection with other Incentives	Render standards more circular by linking standards with end-of-waste status to reward quality. Remove unnecessary technical requirements based on performance of primary materials. Contributes to the well-functioning of the internal market for secondary raw materials.
Additional Experts comments	
Approval of Member States will be key to envisage options 1 or 2. Coherence with existing national legislations needs to be checked.	

2 Render standards more circular

Render standards more circular	
Instrument category	Regulation & Standards
Context	Most technical standards are based on the performance and characterisation methods adequate for primary materials[44] whereas it may not be necessary for targeted uses. The development of technical / quality standards applicable to some secondary raw materials can create confidence for users of recycled materials while ensuring that characterisation methods and quality parameters are adequate for secondary raw materials and targeted uses. Technical requirements used for public and private procurement are often based on the performance of virgin materials. Unnecessary requirements should be lifted in the general standards or specific standards for secondary materials should be developed.
Instrument description	**EU level**: • In coordination with international standards There are a few international ISO standards in application or under development - Mixed recyclates PP/PE used for flexible and rigid consumer packaging ISO 18263 - ISO/DIS 20819: 2018 PLASTICS — WOOD-PLASTIC RECYCLED COMPOSITES (WPRC) — SPECIFICATION - ISO 15360-1:2000 RECYCLED PULPS — ESTIMATION OF STICKIES AND PLASTICS — PART 1: VISUAL METHOD - ISO 15360-2:2015 RECYCLED PULPS — ESTIMATION OF STICKIES AND PLASTICS — PART 2: IMAGE ANALYSIS METHOD • Create specific standards for secondary raw materials - EN 15342:2007 Characterisation of polystyrene (PS) recyclates - EN 15343:2007 - Plastics recycling traceability and assessment of conformity and recycled content - EN 15344:2007 - Characterisation of Polyethylene (PE) recyclates (under review) - EN 15345:2007 - Characterisation of Polypropylene (PP) recyclates - EN 15346:2014 - Characterisation of polyvinyl chloride (PVC) recyclates - EN 15347:2007 - Characterisation of plastics wastes - EN 15348:2014 - Characterisation of polyethylene terephthalate (PET) recyclates - CEN/TR 15353:2007 Guidelines for the development of standards for recycled plastics - CEN/TS 16010:2013 Sampling procedures for testing plastics waste and recyclates - CEN/TS 16011:2013: Recycled plastics - Sample preparation - CEN/TS 16861:2015 Determination of selected marker compounds in food grade recycled polyethylene terephthalate (PET) • Define quality standards in End-of-Waste Regulations or in sectorial Regulations - iron, steel and aluminium scrap (see Council Regulation (EU) No 333/2011) - glass cullet (see Commission Regulation (EU) N° 1179/2012) - copper scrap (see Commission Regulation (EU) N° 715/2013)

[44] European Commission (2018) A European Strategy for Plastics in a Circular Economy
«One of the reasons for the low use of recycled plastics is the misgivings of many product brands and manufacturers, who fear that recycled plastics will not meet their needs for a reliable, high volume supply of materials with constant quality specifications. Plastics are often recycled by small and predominately regional facilities, and more scale and standardisation would support smoother market operation. With this in mind, the Commission is committed to working with the European Committee for Standardisation and the industry to develop quality standards for sorted plastic waste and recycled plastics. A greater integration of recycling activities into the plastics value chain is essential and could be facilitated by plastics producers in the chemical sector. Their experience and technological expertise could help reach higher quality standards (e.g. for food grade applications) and aggregate offer for recycled feedstock.»

	- Regulation (EU) 2019/1009 - Fertilisers Regulation (will be in force in 2022): quality standards for compost and digestates, and soon for struvite, biochar and ash-based materials • Lift unnecessary requirements in existing standards (in the construction sector) that may hamper the use of secondary raw materials • Promote the use of these standards for public and private purchasing
	National or regional level: • Develop national standards for secondary raw materials, for those that are not covered by EU standards • Define quality standards in EOW decisions (notified or case-by-case) - VLAREMA[45]: Flemish regulation defining quality requirements for a series of secondary raw materials e.g. recycled aggregates. • Lift unnecessary requirements in existing standards that may hamper the use of secondary raw materials and develop specific standards for secondary materials • Promote the use of EU and national standards for public and private purchasing Example: Gruppo di Coordinamento Nazionale Bioeconomia – National Coordination Group on Bioeconomy, is taking care of the harmonisation of standards and regulations (4 Ministries involved)[46].
Lifted barriers	Lack of level playing field
Categorisation / Affected Life Cycle Stage	1.e. Substitution of virgin materials with secondary raw materials and by-products Manufacturing / Purchase
Identified Value Chains	Plastics, granulates, cement (to be confirmed), recovered oil
Benchmarking	CEN Technical Committee 249 developed quality standards for recycled plastics. Other standards are under preparation for recycled plastics: • EN 17410 Plastics - Controlled loop recycling of post-consumer (or post-use) PVC-U windows and doors • (WI=00249A2B) Plastics — Recycled plastics — Determination of solid contaminants content Other CEN standards are in application for recycled aggregates.
Description of Impacts	Lifting unnecessary requirements and adapting existing standards should increase demand in recycled materials and stimulate recycling. However, lifted standards should be replaced by adequate standards to avoid loss of performance / incorporation of hazardous substances. Contributes to helping transboundary shipment of materials meeting harmonised standards.
Connection with other Incentives	Mandatory recycled content; Interdependence with Green Public Procurement under mandatory environmental criteria.
Additional Experts comments	
Technical standards should be based on a review of existing standards / technical requirements.	

[45] https://navigator.emis.vito.be/mijn-navigator?woId=43991

[46] http://cnbbsv.palazzochigi.it/en/areas-of-work/biotechnologies/bioeconomy/national-coordination-team/

3 Ban products when a more circular alternative exists

Ban products when a more circular alternative exists	
Instrument category	Regulation & Standards
Context	Some products available on the market have more circular alternatives e.g.: • Products with reduced packaging. • Recyclable products. • Products with high recycled content. • Compostable materials bringing nutritional value to the soil, if they are free of toxic elements[47] . • Reusable/reparable products. Banning less-circular options prevents waste generation. As it is a clear restriction to free market, this instrument may be envisaged if two conditions are met: 1) market-based instruments fail to sufficiently discourage non-circular products due to e.g. consumer convenience. 2) a cost-benefit analysis shows that benefits (incl. environmental benefits) exceed the cost of a ban.
Instrument description	**EU level**: • The Single Use Plastic Directive bans several single use plastics mostly found in marine litter and for which alternatives exist: cotton bud sticks, cutlery, plates, straws, stirrers, sticks for balloons, as well as cups, food and beverage containers made of expanded polystyrene and all products made of oxo-degradable plastic. • Essential Requirements for packaging as part of the Packaging and Packaging Waste Directive could be made more stringent so that non-recyclable and non-reusable packaging items are banned. Some Member States banned single-use plastic bags except if they are compostable. But even if those materials are compostable (which still needs to be demonstrated in industrial conditions), it might not be sufficient to consider the product as circular if it does not provide added value to the soil. In practice this incentive focuses on a limited market with significant differences between circular and non-circular products. The Single Use Plastic Directive is mainly motivated by (marine) litter and is therefore not really targeting the "circularity".
	National level: Existing initiatives cover plastic bags. Other products are targeted by EU measures (cotton buds with plastic straw, plastic straw, PS cups…). Other products are covered by measures outside EU (e.g. disposable diapers in Vanuatu). Nielsen et al. (2019) Need a bag? A review of public policies on plastic carrier bags – Where, how and to what effect? Waste Management: international journal of integrated waste management, science and technology,Vol. 87, pp 428-440. Examples: • France: single-use plastics bags are forbidden at checkout since 2016 and

[47] Biodegradable materials that do not bring nutritional value cannot be considered as circular.
Remark: EN 13432 defines requirements for packaging recoverable by composting and biodegradation. The requirements foresee that the packaging must degrade in a given period of time and certain conditions be non-toxic and not disturb the process but does not say anything about nutritional value to the soil.
The SUP defines 'biodegradable plastic' as a plastic capable of undergoing physical, biological decomposition, such that it ultimately decomposes into carbon dioxide (CO_2), biomass and water, and is, in accordance with European standards for packaging, recoverable through composting and anaerobic digestion.

	outside checkout unless compostable / biodegradable since 2017. *Article 75 – I de la loi de transition énergétique pour la croissance verte, modifiant l'article L. 541-10-5 du code de l'environnement* • Wallonie (Belgium): Since July 2017 - 6 juillet 2017 Arrêté du Gouvernement wallon relatif aux sacs en plastique (M.B. 11.08.2017) • Italy: https://www.minambiente.it/comunicati/shopper-ecco-la-circolare-ministeriale-intepretativa Although such actions can be implemented at MS level, they are a restriction to free market and therefore should be preferably introduced at EU level to ease controls, to avoid cross-border purchase and to avoid fragmentation.
Lifted barriers	Lack of level playing field
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 1.c. Development and sustainable production of new materials (including bio-based materials) that are reusable, recyclable or compostable Design / Manufacturing
Identified Value Chains	Potentially all, but mainly plastics. Regarded today as specifically relevant for plastic consumer products (packaging and non-packaging items) due to the environmental issue of marine litter. When tackling circular economy, it could be expended to wipes, textiles, small objects, cutlery, disposable tableware, packaging from e-commerce
Benchmarking	This is applied in the "SUP" Directive[48] (Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment). Its Article 5 states that "Member States shall prohibit the placing on the market of some single-use plastic products [49]": • Cotton bud sticks • Cutlery (forks, knives, spoons, chopsticks) • Plates • Straws • Beverage stirrers • Sticks to be attached to and to support balloons • Food containers made of expanded polystyrene (PS), i.e. receptacles such as boxes, with or without a cover, used to contain food which: • Beverage containers made of expanded PS, including their caps and lids; • Cups for beverages made of expanded PS, including their covers and lids.
Description of Impacts	Reduced littering and consequential environmental impact due to prevention, unless alternatives are more energy intensive or cause additional environmental impacts. Circular alternatives may be more expensive initially.

[48] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0904&from=EN

[49] with exemptions, see Part B of the Annex of the SUP Directive

Connection with other Incentives	Modulation of EPR fees can tackle single use-products that are not banned (for economic, technical, hygiene reasons).
Additional Experts comments	
Intercontinental purchase through e-commerce should be controlled. The costs and benefits of each ban should be studied on a case-by-case basis in order to anticipate and to avoid potential negative environmental trade-offs of a ban.	

4 Promote social economy in activities fostering the circular economy

Promote social economy in activities fostering the circular economy	
Instrument category	Public procurement
Context	Some waste management operations (collection, sorting, some repair) are work intensive while requesting limited skills from workers. Promoting the social economy in activities directly contributing to the circular economy have both positive socio-economic and environmental impacts. Social workers specifically trained for certain tasks play a key role in collection, sorting and repair activities, leading to more repair, more reuse, more recycling. Social economy is part of the circular economy but the need for social workers intrinsically varies from one MS to another. Social workers play a role in the recycling chain which is inherently job intensive and requires specific skills
Instrument description	**National, regional or local level:** • Introduce minimum share of waste that must be dealt by social economy in the license agreement of Producer Responsibility Organisations (PROs). • Coordinate collaboration agreements between PROs and the social economy • Reserve part of the EPR funds to social economy
Lifted barriers	Lack of level playing field
Categorisation / Affected Life Cycle Stage	2.a. Reuse, repair, refurbishing, repurposing and remanufacturing of end-of-life or redundant products, movable assets and their components that would otherwise be discarded 3.b. Recovery of materials from waste in preparation for circular value retention and recovery strategies (excluding feedstock covered under 3.c) Repair and Waste Management
Identified Value Chains	Domestic waste: Paper & board, bulky waste, WEEE, textiles, reusable objects
Benchmarking	Implemented in EU (B, FR).
Description of Impacts	More jobs for lower skilled population.
Connection with other Incentives	It can be integrated in required tasks of EPR schemes. Subsidies and very low taxes on employment for lower skilled population.
Additional Experts comments	
The lack of managers has been identified a key factor for the development of the social economy. Financial support of managers of the social economy enterprises could favour the emergence of more candidates.	

5 Increase guarantee period

Increase guarantee period	
Instrument category	Regulation & Standards / Public procurement
Context	The default guarantee period is 2 years in the EU and after a half-year, the burden of proof lies on consumer's side.
Instrument description	**EU level:** Increasing the minimum guarantee period (duration may depend on products categories) to force the producers to design products for a longer lifetime. Leaving the burden of proof on the producer's side for 2 years.
Lifted barriers	Lack of level playing field
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 2.a. Reuse, repair, refurbishing, repurposing and remanufacturing of end-of-life or redundant products, movable assets and their components that would otherwise be discarded Design
Identified Value Chains	Vehicles, furniture, EEE, sports goods… It does not include construction and demolition waste nor textile waste.
Benchmarking	The Netherlands requests that products have at a reference lifetime. The industry provides reference lifetimes for many products. Juridical bodies use these reference lifetimes to check compliance. In case of non-compliance, the financial compensation is proportional to the sale price and to the proportion of the missing lifetime. For example, if a product costs 100€ and is supposed to last at least 5 years but stops working after 3 years, the financial compensation is 2/5*100= 40€. Reference lifetimes could be homogenised at EU level. The system in place in the Netherlands is unique, as the law does not provide a limit on the duration of the guarantee. All consumers have a "right to a good product". These regulations have been in place since 2003. Any consumer who considers that his product is "not good" may request the application of the guarantee from the seller within any time limit. In the event of refusal by the seller, the criteria that can be used to define the properties that the consumer can expect from a product are: • Nature of the sale: new or second-hand product, of a known- or unknown brand, • Seller communication: in terms of lifespan and quality, whether in writing or orally, • Type of store: brand store, discount store, etc. • Product price level. • Visibility of the product defect • Nature of the defect: defect caused by misuse or not. The Federation of Installation and Retail Trade companies of technical products (UNETO-VNI) published a table of expected service lives according to product type and price. The table only concerns electrical and electronic products. This table is widely accepted by industry and consumers and serves as a practical reference for allocating product repair costs. The expected service lives vary between 2 and 8 years (for high-end large household appliances). The burden of proof for the seller is 6 months.

	More information can be found in a dedicated study made by RDC Environment[50].
Description of Impacts	Fewer products due to longer lifetimes thereby reducing amount of waste produced over time. Although environmental benefit can be expected in many cases, there are significant exceptions: • products can become heavier, using more materials, additives • when resources such as energy, water, cleaning products (…) are used, older products do not benefit from recent improvements (e.g. vacuum cleaner) There could be cost increases for some products, as well as an increase in resource needs. Encourages repair activities thereby promoting social economy, particularly when developed within EU territories.
Connection with other Incentives	Communication on repairing products. Mandatory environmental labelling. Modulation of EPR fees.
Additional Experts comments	
Reference lifetimes should be reasonable.	

[50] https://www.rdcenvironment.be/wp-content/uploads/2017/11/2820-Obsolescence-programme%CC%81e_rapport-final.pdf chapter IV.3.5 (p.77-83 + 132-137)

6 Favour R&D support for value chain integrated projects and investment in new circular activity

Favour R&D support for value chain integrated projects and investment in new circular activity	
Instrument category	Economic instruments (tax & subsidies)
Context	--
Instrument description	**EU, national, regional or local level:** The EC and national bodies contribute to financing R&D. Selection and support level (% subsidised) depend on additional criteria: • The collaboration of actors from different stages of the value chain • The potential contribution to the transition towards a circular economy, like improved materials that allow using mono-material instead of multilayers, making them more recyclable
Lifted barriers	Lack of chain collaboration
Categorisation / Affected Life Cycle Stage	4.a. Development/deployment of tools, applications, and services enabling circular economy strategies Design / Manufacturing / Purchase / Use / Dispose / Waste management
Identified Value Chains	All
Benchmarking	--
Description of Impacts	Particularly effective if breakthrough technologies are developed. Beneficial for stakeholders involved in chain integrated projects.
Connection with other Incentives	Market based instruments EPR eco-modulation
Additional Experts comments	
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7 Set up Green Deals and clusters at different levels

Set up Green Deals and clusters at different levels	
Instrument category	Communication & labelling
Context	--
Instrument description	**<u>National or regional level:</u>** Value chains are often split in numerous independent actors with limited knowledge of each other's activities. The traditional commercial supplier-buyer relation limits information exchange. Public Authorities can favour information exchange and improve collaboration between actors by: • creating clusters (or supporting their creation), i.e. organisations that cover all (or at least several) stages of the value chain. The clusters can perform R&D, being a knowledge centre dedicated to the specific value chain • setting up green deals, i.e. agreements between private and public bodies where all parties commit to act. The role of Public Authorities is a moral support, being a neutral partner that can be referred to for external communication, providing legal clarity by helping interpret legislation or, where appropriate and not lowering environmental policy ambition, less red tape.
Lifted barriers	Lack of chain collaboration Lack of first movers
Categorisation / Affected Life Cycle Stage	4.a. Development/deployment of tools, applications, and services enabling circular economy strategies Design / Manufacturing / Purchase / Use / Dispose / Waste management
Identified Value Chains	All
Benchmarking	Green deals are used in the Netherlands, Belgium, France. Other examples include the European Circular Plastics Alliance and the European Plastics Pact.
Description of Impacts	Relatively small direct impacts but creates favourable conditions for breakthrough organisations and technologies.
Connection with other Incentives	Support for R&D.
Additional Experts comments	
This instrument is only effective if many actors are involved and if they continuously invest in the Cluster/Green Deal/Pact. Activities must have a clear added value for the actors. Good management (enthusiastic and realistic) is key to avoid it turning into an administrative machine with limited added value.	

8 Favour environmental labelling and certification

Favour environmental labelling and certification	
Instrument category	Communication & labelling
Context	--
Instrument description	**EU, national or regional level:** A trustworthy label informs the consumer that the product/service is particularly relevant from an environmental (circular economy) perspective. With the PEF methodology, public data bases, standard modelling, default values and weighting factors, the environmental impacts can be calculated on an objective and standardised basis. This means on/off or semi-quantitative labels can be replaced by much more meaningful quantitative labels, allowing relevant comparisons between products from the same and from other product categories. The limit to using such labels is the incomplete list of sectors involved and the continued provisional character of the methodology. This significant limit must be overcome. Electronic labels also allow results to be calculated specifically for each user, depending on the country, the use behaviour, and the waste management behaviour.
Lifted barriers	Lack of internalisation of externalities
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 1.d. Substitution or substantial reduction of substances of concern in materials, products and assets to enable circular economy strategies 1.e. Substitution of virgin materials with secondary raw materials and by-products 4.a. Development/deployment of tools, applications, and services enabling circular economy strategies Design / Manufacturing / Purchase
Identified Value Chains	All
Benchmarking	There are already plenty of labels, e.g. the EU ecolabel and many national labels. However, they are all based on technical (on/off or semi-quantitative) criteria
Description of Impacts	Publishing comparisons between products will create competition among producers to be among the best-in class products, stimulating research and investment. Consequentially, favouring eco-label products will have a positive impact on the environment. Globally it should stimulate creativity and innovation, a positive factor to strengthen the competitive character of the EU. Member states should inform consumers about labels reliability (e.g. as in Germany[51] and France[52]).

[51] https://www.umweltbundesamt.de/umwelttipps-fuer-den-alltag/siegelkunde

[52] https://www.ademe.fr/labels-environnementaux

Connection with other Incentives	Relevant input to apply GPP or, to a lesser extent, eco-modulation of EPR fees. Some redundancy with Support R&D (incentives are already high), pricing externalities.
Additional Experts comments	
The methodology must be logic and extensive databases must be made available.	

9 Communication (on repairing products)

Communication (on repairing products)	
Instrument category	Communication & labelling
Context	--
Instrument description	**National, regional or local level:** Communicate on the repair sector in general (repair directories etc), and on the possibility of repairing the product which will lead to changes in consumer behaviour (purchase, use, sorting).
Lifted barriers	Lack of internalisation of externalities: if the consumer is informed and ready to pay more for circular products, the producer can make the necessary investment and transfer the additional cost to the consumer. The environmental benefits are thus internalised in the decision-making process, not as cost factor, but as a revenue factor. Lack of consumer participation
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 2.a. Reuse, repair, refurbishing, repurposing and remanufacturing of end-of-life or redundant products, movable assets and their components that would otherwise be discarded 4.a. Development/deployment of tools, applications, and services enabling circular economy strategies Design / Manufacturing / Purchase / Use / Dispose / Waste management
Identified Value Chains	All, but mainly electronic and electric appliances and furniture
Benchmarking	Widely applied
Description of Impacts	Improved behaviour related to purchasing, use and sorting.
Connection with other Incentives	Subsidies or zero-VAT can help increase the availability (scale-up) of repair activities.
Additional Experts comments	
An objective communication is necessary to avoid market distortion.	

10 Material Taxation

Material Taxation	
Instrument category	Economic instruments (tax & subsidies)
Context	--
Instrument description	**National level:** Negative environmental externalities are environmental impacts that are not reflected in market prices, e.g. carbon and greenhouse gas emissions, resource depletion, air pollution, degradation/destruction of ecosystems etc. Internalising externalities in the economy via taxation mechanisms (e.g. carbon / energy taxation, resource taxation, material taxation) or subsidies (e.g. evaluating public investment projects based on their full societal impact, including externalities) make circular business models more profitable. As using primary materials generally generates more environmental impacts than using recycled materials, the relative price of primary materials increases compared to recycled materials. If the price difference is sufficient to cover the cost of selective collection, sorting and recycling operations, secondary materials become permanently competitive. This market stability is key for investors to invest in circular chains. There are basically two ways to internalise impacts: 1. taxing impacts where they happen (emission points). The additional costs will be integrated by the value chain. 2. taxing the impacts of products. Taxing impacts where they happen The price can either be: • flat (a fixed price per unit of pollution) or • variable, based on an overall target emission level, through Emission Trading Schemes Taxing the impacts of products Products can be taxed at input level and at consumption level. Consumption taxes include VAT and a means of stimulating more circular products/materials, a reduced VAT can be applied for products/materials that contain recycled materials. Input taxes include placing a tax on the utilisation of virgin resources to internalise in prices their comparatively higher resource, carbon and energy footprint so as to level the playing field with more circular products. At EU level, enhanced cooperation in taxation could be encouraged for MS that are interested in joining such a path. In addition, reference values and guidelines may be developed to help MS internalise externalities. This work has been performed in the framework of the Product Environmental Footprint (PEF) project[53]. A general guidance document has been published[54], as well as PEFCR[55] (Product Environmental Footprint Category Rules) to allow objective evaluation of the environmental impacts of products and organisations. Besides the methodological rules, the EC also provides a free access data base and tools are available to calculate very easily the impacts. This means **all necessary ingredients**

[53] https://ec.europa.eu/environment/eussd/smgp/ef_pilots.htm ; https://ec.europa.eu/environment/eussd/smgp/policy_footprint.htm

[54] https://ec.europa.eu/environment/eussd/pdf/footprint/PEF%20methodology%20final%20draft.pdf

[55] https://ec.europa.eu/environment/eussd/smgp/PEFCR_OEFSR_en.htm

	(methodology, data, tools) are available for an objective, rapid and cheap evaluation of the environmental impacts of products (for which a PEFCR exists). Crossboarder aspects As the methodology includes a weighting method of different impacts, a global score can be calculated. As the score can be calculated, it is also **possible to tax the impacts proportionally to their size**. The part that is already internalised (price of a resource, taxes on emissions etc.) should be excluded from this taxation system. The mechanisms could be applied to imported products. For competition purposes, exported products could be exempted from the taxation (e.g. by implementing the tax on products put on the EU market). It requires standards in accreditation of the calculated impacts. This incentive should be implemented gradually to allow companies to adapt to those new cost factors. Subsidies linked to taxation Subsidies are also a mean to scale up the circular economy by linking subsidies to reward positive externalities such as saved emissions, reduction in energy, preservation of natural capital. In the case of taxation of materials, the money received should then be redirected as subsidies to investments in product/material circular activities within the value chain: collection, recycling, innovation etc. Further information is found at Incentive #20 on Subsidies.
Lifted barriers	Lack of internalisation of externalities Lack of Level playing field
Categorisation / Affected Life Cycle Stage	Potentially all Design / Manufacturing / Purchase / Use / Dispose / Waste management
Identified Value Chains	All
Benchmarking	Example of fiscal incentives The EU Emission Trading Scheme introduced a market price for industrial carbon emissions. Several EU countries introduced a carbon tax that applies to energy consumptions: Sweden, Denmark, Finland, France, the Netherlands, Germany, Ireland, UK, Slovenia. Sweden has developed a trading scheme for NOx emissions. France has a taxation scheme that covers polluting emissions above given annual thresholds (TGAP). Public bodies are obliged to include air pollution (NOx, SOx) in their purchase criteria of vehicles. Subsidies in Renewable Energy boosted the development of the sector in the starting phase. Tax the impacts of products A proof of concept study supported by ADEME has been conducted in France on a "circular" VAT, called MODEXT project[56] (Environmental externality monetisation for a circular Value Added Tax). It assessed the feasibility of monetising the environmental externalities of a product or service life cycle, in order to modulate VAT rates. See also incentive on Lower VAT on green products, on repairing activities.

[56] « *Modélisation des externalités environnementales pour une TVA circulaire (MODEXT)* », Yves Gérand, Stéphane Le Pochat, Anaëlle Dubosc.2018. – Rapport. 97p. - Accessed at: https://www.ademe.fr/projet-modext

Description of Impacts	Significant reduction of negative externalities through pressure on the whole value chain to reduce environmental impacts in order to reduce cost • Waste prevention • Lower impacts of production and use phase • Increased recycling rates as demand increases because recycled materials become relatively cheaper compared to virgin. A carbon border tax can be envisaged to avoid competition problems but needs WTO approval. Currently, the European Commission is working on the carbon border adjustment mechanism[57]. Requires unanimity among MS if required to be conducted at European level, which is more effective.
Connection with other Incentives	• If the internalisation of negative externalities would be applied, the market economy will spontaneously make the economy circular, reducing the need for other actions. Complementary actions would only be requested for: - Launching the transformation - Speeding up innovation - Removing barriers • Mandatory recycled content • Modulation of EPR fees • Landfill/incineration tax • Producers pay full cost of waste management (PAYT, EPR)
Additional Experts comments	
Competitiveness of EU producers should be maintained by applying the same internalisation structure on imported products.	

[57] EU Green Deal (carbon border adjustment mechanism) (europa.eu)

11 Modulation of EPR fees

Modulation of EPR fees	
Instrument category	Economic instruments (tax & subsidies)
Context	EPR fees are the financial contributions paid by producers to **Producer Responsibility Organisations (PRO)** in case of a collective fulfilment of Extended Producer Responsibility. The 2018 revision of the Waste Framework Directive introduced an obligation to modulate financial contributions paid to the EPR schemes based notably on durability, reparability, re-usability, recyclability and the presence of hazardous substances, thereby taking a life-cycle approach. This is expected to incentivise better product (or packaging) design.
Instrument description	**EU and national level:** EPR has been historically defined by European law as an instrument of pure economic cost coverage, that should stimulate eco-design. The debate on eco-modulation opens the question of keeping this perspective or changing it to progressively internalise externalities inside EPR fees. The revised Waste Framework Directive does not specify by how much fees should be modulated and how the modulated fee scale shall be established. There are four different ways of elaborating a modulated fee scale: • **Option 1: A fee scale reflecting the real net cost of waste management** taking into account the impact of e.g. recyclability on waste management cost, via economic studies including the cost of recycling and disposal. Penalties may be added as a form of malus to the items not reaching recycling targets and bonus for those who reach the recycling targets. Advantages: - Fees are better differentiated per product characteristics affecting end-of-life cost. - PROs keep the objective of net cost coverage. They do not collect more money than what is needed. - There are no cross-subsidies between materials / items. Disadvantages: - Magnitude of fee modulation may not provide a sufficient incentive to design for recyclability. Real net economic cost is difficult to anticipate for long life products. - It does not favour service life extension • **Option 2: A fee scale with environmental bonus/malus to reflect differences in product environmental footprint within the fee scale** Advantages: If bonus and malus compensate, PROs collect enough money (but not too much) to cover waste management cost. Disadvantages: - The magnitude of fee modulation may not provide a sufficient incentive to design for recyclability. - Cross-subsidies: lowest performers subsidise the highest performers, potentially beyond the actual economic cost of waste management. - Externalities of the highest performers are not internalised Examples of modulated fee scales according to option 2[58]: - CONAI (Packaging waste, Italy) - Fost Plus (Packaging waste, Belgium) - CITEO (Packaging Waste and graphic paper, France) - Ecosystèmes (WEEE, France) - Eco-mobilier (Furniture, France) For packaging, CITEO, CONAI and Fost Plus have reported that fee modulation had a positive impact on product design with less problematic

[58] Source: Bio by Deloitte for European Commission (2014)- Development of Guidance on Extended Producer Responsibility (EPR))

	packaging on the market. However, the impacts have not been quantitatively assessed. • **Option 3: A fee scale with bonus/malus set based on the expected impact on product design rather than on economic or environmental impacts** (or packaging design) e.g. up to 20% of the product price Advantages: High potential impact on product design. Disadvantages: Cross-subsidies: lowest performers subsidise the highest performers, potentially beyond the actual economic cost of waste management. Externalities of the highest performers are not internalised. Example: The possibility to charge a malus up to 20% of the product price has been introduced in the draft circular economy law in France (2019) • **Option 4: A fee scale reflecting the full societal impact** Advantages: Internalisation of externalities Disadvantages: PROs may collect more than what is needed to cover costs
Lifted barriers	Lack of internalisation of externalities Lack of consumer participation
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 1.b. Development and deployment of process technologies that enable circular economy strategies 1.c. Development and sustainable production of new materials (including bio-based materials) that are reusable, recyclable or compostable 1.d. Substitution or substantial reduction of substances of concern in materials, products and assets to enable circular economy strategies 1.e. Substitution of virgin materials with secondary raw materials and by-products Design / Purchase
Identified Value Chains	All waste streams with collective EPR
Benchmarking	--
Description of Impacts	Contributes to incentivising better product design by ensuring that fees paid by producers to EPR Schemes are modulated, based on their reparability, recyclability and/or recycled content.
Connection with other Incentives	**Landfill / Incineration ban/tax** ➔ As landfilling/ incinerating non-recyclable packaging gets more expensive, EPR schemes will pay for the landfilling/ incineration, this higher cost will be reflected in a higher fee. **Market-based instruments pricing externalities** ➔ The more externalities are internalised into the economy, the more a potential modulation of EPR fees based on real net waste management cost reflects the environmental impacts of waste management. Redundancy with **Increased guarantee period**: lower fees for long-life products get the same benefit (increasing lifetime).
Additional Experts comments	
Modulation of EPR fees is easier to enforce in monopolistic / non-for-profit PROs. In competing PROs / for profit PROs, fees may not be transparent. Potential guidelines on fee modulation must be controlled by the administration potentially via external audits.	

12 EPR: Adapting contract duration and conditions

EPR: Adapting contract duration and conditions	
Instrument category	Economic instruments (tax & subsidies)
Context	--
Instrument description	**<u>National level:</u>** EPR schemes often have a strong supplier position for the waste streams falling under their scope. Contractors are reluctant to invest in sorting and treatment infrastructure if they are not sure they will get a sufficient amount of material during the depreciation period. Adapting contract duration for instance via longer duration if relevant and contract conditions for instance_by indexing them on real raw materials market price to mitigate risks linked to the possible collapse of commodity prices. A prerequisite for long term investments is a sustainable legislative framework with clear distribution of roles and responsibilities for all involved stakeholders. In countries where the legislation/regulations change often (for example every year) such long term investments are not viable. Moreover, recycled products compete with primary products. If the primary price goes down, the recycled price must follow. If the revenues from the recycling facilities lower, the gate fee for the input material must also lower to remain profitable. The problem becomes more acute when the price of recycled materials becomes negative. A way to solve this problem is to correlate the price of input materials of recycling facilities with the price of primary materials. Financial (tax on environmental impacts…) or normative (mandatory recycled content) instruments could also help avoiding those negative prices.
Lifted barriers	• Lack of first movers • Low primary price of materials • Unstable output market
Categorisation / Affected Life Cycle Stage	4.a. Development/deployment of tools, applications, and services enabling circular economy strategies Waste Management
Identified Value Chains	The sectors where EPR applies, for example packaging, WEEE, batteries, cars, textiles, furniture, etc.
Benchmarking	There are many EPR schemes all over Europe, but long-term contracts remain a touchy subject as they **create a barrier for newcomers**: • New operators (the investment of the first mover is depreciated when the new contract is launched) For example, Fost Plus[59] (Belgium) proposed 9-years contracts for the new packaging sorting plants (from bottles and flasks to all plastic packaging) and for some recycling operations where large investments are necessary.
Description of Impacts	Savings for the value chain as the necessary investment can be made to get an economy of scale and improved techniques. A prerequisite for long term investments is a sustainable legislative framework. In countries where the legislation/regulations change often (for example every year) such long term investments are not viable. The new Art 8a WFD provide a good legislative framework for EU member states.

[59] https://www.fostplus.be/en

Connection with other Incentives	Pricing externalities based on environmental impacts (if relatively low, i.e. extreme low prices are avoided but there is still a significant investment risk; if very high, i.e. prices of primary materials and recycled materials remain constantly high). Landfill/incineration ban/tax
Additional Experts comments	
The market should be open to many actors to avoid monopolistic situations on the operational level for collection, sorting and treatment.	

13 Green public procurement: apply environmental (circularity) criteria (global environmental performance, recycled content, long life)

Green public procurement: apply environmental (circularity) criteria (global environmental performance, recycled content, long life)	
Instrument category	Public procurement
Context [60]	Public procurement accounts 13-14% of GDP[6162]. However, public procurement may not fully take account of the objectives of a circular economy, e.g. ensuring that materials can re-enter the economy. Policymakers can examine public procurement policies to identify how these contribute to or support the uptake of circular innovations. They can ensure that public procurement values circular products and services and they can significantly support the transition towards a more circular economy. If for instance public services across Europe were to require increased use of products, which are repairable, recyclable or made of recycled materials as well as of services relying on circular business models, this would have a significant impact on the stimulation for circular innovations.
Instrument description	**EU, national, regional or local level:** • Include environmental/circularity criteria in the purchasing process. • Use environmental labels that include circularity criteria as a purchasing criterion. List of relevant circularity criteria: • Reduced overpackaging via an index packaging • Lifetime • Availability of spare parts or information on the availability of spare parts available to the consumer • Recyclability • Recycled content.
Lifted barriers	Lack of internalisation of externalities Lack of first movers
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 1.c. Development and sustainable production of new materials (including bio-based materials) that are reusable, recyclable or compostable 1.d. Substitution or substantial reduction of substances of concern in materials, products and assets to enable circular economy strategies 1.e. Substitution of virgin materials with secondary raw materials and by-products 2.a. Reuse, repair, refurbishing, repurposing and remanufacturing of end-of-life or redundant products, movable assets and their components that would otherwise be discarded 2.c Product-as-a-service, reuse and sharing models based on, inter alia, leasing, pay-per-use, subscription or deposit return schemes, that enable circular economy strategies Design / Manufacturing / Purchase / Use / Waste management

[60] IMPEL 2019, "MAKING THE CIRCULAR ECONOMY WORK Guidance for regulators on enabling innovations for the circular economy (prevention and recycling of waste)" http://minisites.ieep.eu/assets/2382/MiW_and_IMPEL_Guidance_-_Making_the_Circular_Economy_work_-_February_2019.pdf

[61] "Public Procurement Indicators 2017" https://ec.europa.eu/docsroom/documents/38003

[62] https://ec.europa.eu/info/sites/info/files/file_import/european-semester_thematic-factsheet_public-procurement_fr.pdf

Identified Value Chains	All
Benchmarking	Exists for vehicles.
Description of Impacts	Public Authorities purchase a lot of products/services (13-14% of the GDP in the EU). Moreover, Public Authorities indirectly push the market in the circular direction so that producers also offer greener products to the consumers. Examples of GPP benefits [63]: • The City of Vienna saved €44.4 million and over 0,1 Mt of CO_2 between 2004 and 2007 through its EcoBuy programme • 3 Mt of CO_2 would be saved in the Netherlands alone if all Dutch public authorities applied the national Sustainable Public Procurement criteria, which include green criteria. Public sector energy consumption would be reduced by 10% • If all IT purchases in Europe followed the example of Copenhagen City Council and the Swedish Administrative Development Agency, energy consumption would be cut by around 30 TWh – roughly the equivalent of four nuclear reactors • £40.7 million (€47.2 million) could be saved in the UK if the proposed Government Buying Standards (GPP criteria) are applied by all central government departments and executive agencies, according to a cost-benefit analysis which monetised the potential impacts • CO_2 emissions would be cut by 15 Mt/year if the whole EU adopted the same environmental criteria for lighting and office equipment as the City of Turku, Finland - reducing electricity consumption by 50% Green products are intrinsically more expensive, otherwise they would be the reference from a technical-economic viewpoint. The public purchaser will thus pay a higher price for the same quality. However, there are also indirect benefits like activity stimulation, innovation, less health cost etc. In addition, Externalities are better integrated in the decision-making process.
Connection with other Incentives	Labelling based on quantitative environmental impact
Additional Experts comments	
Support is necessary for local authorities. Standard criteria and evaluation tools should be made available. There is already abundant and relevant information[64].	

63 https://ec.europa.eu/environment/gpp/benefits_en.htm

http://www.unep.fr/scp/procurement/docsres/ProjectInfo/StudyonImpactsofSPP.pdf

64 https://ec.europa.eu/environment/gpp/toolkit_en.htm

https://ec.europa.eu/environment/gpp/pdf/Buying-Green-Handbook-3rd-Edition.pdf

14 Mandatory recycled content

Mandatory recycled content	
Instrument category	Regulation & Standards
Context	--
Instrument description	**EU level:** Imposing a mandatory recycled content will stimulate demand for recycled materials and thereby stimulate investment in R&D / production facilities to incorporate recycled materials and comply with the regulation. Imposing it can lead to economies of scale which will help the market further increase recycled content. A mandatory recycled content is relevant when there are market failures such as the cost of recycling comparatively more expensive than easily accessibly primary materials / products (plastics/textiles/paper/cardboard, etc.). When there is a mandatory recycled content, it should apply to all products placed on the EU market, in order to avoid distortion of competition between domestic and imported products. It should be imposed via product regulations e.g. Ecodesign Regulations, Packaging and Packaging Waste Directive, Single Use Plastics Directive or other regulations to be conceived. Compliance is checked by national market surveillance authorities, following an inspection plan.
Lifted barriers	Lack of internalisation of externalities Lack of first movers
Categorisation / Affected Life Cycle Stage	1.e. Substitution of virgin materials with secondary raw materials and by-products Manufacturing
Identified Value Chains	Plastics (at least for products produced mainly in Europe) Textiles
Benchmarking	In the Single Use Plastics Directive (DIRECTIVE (EU) 2019/904), a mandatory recycled content has already been introduced for PET beverage bottles (25% by 2025 and 30% by 2030, as an average per Member State). The Commission must develop calculation and verifications rules by 2022.
Description of Impacts	The minimum threshold should be high enough to actually encourage incorporation of recycled materials beyond a business as usual scenario and compensate enforcement costs.
Connection with other Incentives	• End-of-waste which eases the cross-border movement of recycled materials meeting quality standards to production facilities. • Modulation of EPR fees • Landfill/incineration ban/tax • Producers pay full cost of waste management (PAYT, EPR)

Additional Experts comments
Although it is possible to identify that recyclates have been used inside materials, the recycled content is not technically quantifiable. Therefore, compliance with a mandatory recycled content (or to recycled as a green public procurement criteria) needs to be verified via a paper trail, or via a paper trail complemented by a marking technique. (Source: RDC Environment for Dutch Ministry of Infrastructure and Environment, 2017) Verification via a paper trail requires a quality assurance scheme for all companies participating in the system and external audits, inside and outside the EU depending on where the production is located. In case materials can be used in multiple sectors, instruments should cover all affected sectors to avoid that a mandatory recycled content only result in a transfer of recyclates from one industry (e.g. construction) to another (e.g. EEE). The minimum recycled content threshold should be set taking into account technical and economic feasibility of reaching sufficient quality for incorporation. Mandatory recycled content should not lead to less stringent requirements for the presence of hazardous substances in new products. The instrument will be easier to enforce (and more reliable) if incorporation happens in the EU and can be checked in the EU.

15 Landfill/incineration ban/tax

Landfill / incineration ban/tax	
Instrument category	Economic instruments (tax & subsidies)
Context	--
Instrument description	**EU, national or regional level:** A landfill/ incineration ban / tax is a fee paid per amount of waste landfilled / incinerated. The amount can be variable according to several parameters, the highest being for unsorted waste containing recyclable/reusable materials and the lowest, even reduced to zero, for non-recyclable materials, like residues from sorting operations. Typically, landfill taxes should be higher than incinerations taxes as incineration (Energy from Waste) should be preferred to landfill. Landfill bans are another means to stimulate recycling. For those streams that are currently not well recycled, sorting and recycling is more expensive than landfill and/or incineration. Presently, landfill and incineration taxes are national / regional instruments and not the competency of the EU. They are paid by waste producers, and for household waste, by local authorities. At short-term, the EU could: - conduct a benchmarking studies and conclude on the best practices in terms of landfill/incineration tax/ban in order to attain recycling targets. - introduce financial penalties applicable to those countries that do not meet their landfill reduction objectives / their recycling targets. In the long run, the EU could envisage a specific regulation that could be applicable when all Member States are at the same maturity in the waste hierarchy and the 2035 recycling targets have been met.
Lifted barriers	Lack of internalisation of externalities when recovery (electricity, heat, secondary material) is not involved. Lack of consumer participation in separate collection (including companies).
Categorisation / Affected Life Cycle Stage	3.b. Recovery of materials from waste in preparation for circular value retention and recovery strategies (excluding feedstock covered under 3.c) 3.c. Recovery and valorisation of biomass waste and residues as food, feed, nutrients, fertilisers, biobased materials or chemical feedstock Dispose / Waste management
Identified Value Chains	All that are technically recyclable
Benchmarking	RDC Environment for ADEME (2017) Comparative study of waste disposal (mostly landfill) taxation in Europe- State-of-the-art and efficiency analysis for non-hazardous waste landfill and incineration tax in several European countries. Among the main lessons of this study: • The most efficient countries (low landfill rate) have the highest storage prices and the level of landfill tax generally explains this high price (excluding Germany). • The performance also appears to be linked to time factors in the tax trajectory (reporting time, visibility and rapid progress) as well as to the combination with other instruments, including bans on landfilling of some types of waste. • The study provides a useful understanding on the impact of a landfill tax.

Description of Impacts	Increase in recycling rates if well structured. A limitation is the higher cost for the elimination of residues from sorting/recycling operations. This increases the cost of sorting/recycling and favours export of recyclable waste. Therefore lower (even zero) fees should be applied to non-recyclable residues from sorting/recycling operations. Taxes are a Member State competence. Guidelines and penalties should be introduced. A minimum taxation might not be desired by Member States because other solutions may be equally efficient (reduction of landfill/ incineration capacities, landfill bans…)
Connection with other Incentives	Modulation of EPR fees.
Additional Experts comments	
Some countries have already implemented landfill / incineration bans (Germany / UK / Netherlands / Austria): landfill / incineration taxes are not relevant for them. Increase in landfill/incineration tax should target priority waste streams that are recyclable or waste streams where taxation may encourage innovation in finding recycling solutions. For Waste Streams that can no longer technically be recycled, Energy Recovery is the best suited option for disposal. Hazardous waste is treated accordingly as specified in existing regulations.	

16 Waste producers pay the full waste management cost

Waste producers pay the full waste management cost	
Instrument category	Economic instruments (tax & subsidies)
Context	--
Instrument description	**National, regional or local level:** Pay as you throw (PAYT) (also called trash metering, unit pricing, variable rate pricing, or user-pay) is a usage-pricing model for disposing of municipal solid waste. Users are charged a rate based on how much waste they present for collection to the municipality or local authority. The principle of a PAYT system is to partially or fully reflect the cost of waste collection and management in the amount paid by the waste producers. Industrial waste producers collected by private services are already in a PAYT system. For households / household-like waste, the situation differs per country/ region, and per waste stream. In some cases, local authorities collect a fee that depends on household / commerce / organisation characteristics (size, income, square meters…) and not on waste production. Introducing a PAYT system will encourage participation in the separate collection system because waste producers will pay less for recyclable waste than for residual waste. It also financially encourages waste producers to change their consumption patterns towards waste prevention in order to cut their costs. The Extended Producer Responsibility (EPR) aims at lifting the financial burden of waste management from local authorities, taxpayers and waste producers to transfer it to product suppliers, and ultimately to consumers. This is intended to internalise financial externalities of waste management in the product value chain, and therefore to encourage product eco-design and waste prevention as well as to reduce landfilling and to develop recycling and recovery channels. PAYT and EPR are complementary. In case there is an EPR in place, waste producers should only pay for costs that are not already covered by the PRO. For waste streams under EPR, the obliged industry covers the cost of separately collecting the waste coupled with its subsequent transport and treatment, including treatment necessary to meet EU waste management targets. Such costs should be established in a transparent way between the actors concerned, including producers, their EPR organisations and public authorities. As the PRO does not cover the cost of managing waste products that are not collected separately, PAYT can cover this residual cost.
Lifted barriers	Lack of internalisation of externalities Lack of consumer participation
Categorisation / Affected Life Cycle Stage	3.a. Separate collection and reverse logistics of wastes as well as redundant products, parts and materials enabling circular value retention and recovery strategies 3.b. Recovery of materials from waste in preparation for circular value retention and recovery strategies (excluding feedstock covered under 3.c) 3.c. Recovery and valorisation of biomass waste and residues as food, feed, nutrients, fertilisers, biobased materials or chemical feedstock Design / Manufacturing / Purchase / Use / Dispose / Waste management
Identified Value Chains	All

Benchmarking	<u>Extended Producer Responsibility</u> EPR has been implemented at EU level for end of packaging life packaging, vehicles, batteries and waste electric and electronic equipment. For packaging, EPR will be mandatory from 2024 onwards. As stated in the WFD, some MS have introduced additional EPR for different waste streams: oil, paper additional to packaging from paper like newspapers, textiles, used tyres, furniture etc[65]. <u>PAYT</u> RDC Environment and Girus for ADEME (2018) - Benchmark of pay as you throw practices for waste management In the territories studied, where PAYT is now the majority, there are strong restrictions on the types of waste accepted in landfill and a very high landfill tax. In all PAYT territories, the residual waste production has decreased. Following the implementation of a PAYT system, local authorities in the studied territories have reduced the frequency of collection of residual waste. The WFD states (Art 8a.2) "*Member States shall also take measures to create incentives for the waste holders to assume their responsibility to deliver their waste into the separate collection systems in place, notably, where appropriate, through economic incentives or regulations*."
Description of Impacts	Waste prevention, Eco-design, increased separate collection and recycling. Mostly transition cost (equipment of containers with chips, changing the fee collection system) for local authorities when implementing. MSW management cost will be reduced (less MSW) and selective waste management cost will increase (through higher EPR fees).
Connection with other Incentives	Landfill / incineration ban / tax EPR eco-modulation
Additional Experts comments	
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[65] Source: Bio by Deloitte for the European Commission (2014) - Development of Guidance on Extended Producer Responsibility (EPR)

17 Lower VAT on green products and services

Lower VAT on green products and services	
Instrument category	Economic instruments (tax & subsidies)
Context	--
Instrument description	**National level:** Lower VAT (0% or 6%) on green products, on repairing activities Different criteria may be set to define what is a green product (long life, recyclability, recycled content…).
Lifted barriers	Lack of level playing field Lack of internalisation of externalities Lack of consumer participation Low primary price of materials
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 1.b. Development and deployment of process technologies that enable circular economy strategies 1.c. Development and sustainable production of new materials (including bio-based materials) that are reusable, recyclable or compostable 1.d. Substitution or substantial reduction of substances of concern in materials, products and assets to enable circular economy strategies 1.e. Substitution of virgin materials with secondary raw materials and by-products 2.a. Reuse, repair, refurbishing, repurposing and remanufacturing of end-of-life or redundant products, movable assets and their components that would otherwise be discarded 2.c. Product-as-a-service, reuse and sharing models based on, inter alia, leasing, pay-per-use, subscription or deposit return schemes, that enable circular economy strategies Design / Manufacturing / Purchase / Use / Dispose / Waste management
Identified Value Chains	All
Benchmarking	Lower VAT on repairing activities is implemented in Sweden. A proof of concept study supported by ADEME has been conducted in France on a "circular" VAT, called MODEXT project[66] (Environmental externality monetisation for a circular Value Added Tax). It assessed the feasibility of monetising the environmental externalities of a product or service life cycle, in order to modulate VAT rates.
Description of Impacts	Increased Reuse, Repair and recycling activities Reduced costs for Recycling and Repair
Connection with other Incentives	Pricing externalities
Additional Experts comments	
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[66] « *Modélisation des externalités environnementales pour une TVA circulaire (MODEXT)* », Yves Gérand, Stéphane Le Pochat, Anaëlle Dubosc.2018. – Rapport. 97p. - Accessed at: https://www.ademe.fr/projet-modext

18 Addressing waste exports from the EU

Addressing waste exports from the EU	
Instrument category	Regulation & Standards
Context	
Instrument description	**EU level:** Though restricting any types of export is *per se* not an incentive, addressing waste exports from the EU to third countries is among the objectives of the new Circular Economy Action Plan to ensure that the EU does not export its waste challenges to third countries. This can be achieved by various means, be it at international level through amendments to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, as recently done with the adoption of amendments regarding plastic waste shipments, or by revising the waste shipment regulation No 1013/2006. **A better enforcement of existing requirements is equally essential to more effectively combat illegal exports of waste**. Addressing exports of waste outside the EU, in particular of unprocessed waste, requires in parallel the implementation of incentives to stimulate end-markets for recycled materials, thereby substituting primary raw materials with secondary raw materials in manufacturing. This is instrumental to encourage circular value chains within the EU whilst creating jobs (for example through delocalised packaging).
Lifted barriers	Unstable output markets
Categorisation / Affected Life Cycle Stage	1.b. Development and deployment of process technologies that enable circular economy strategies 2.a. Reuse, repair, refurbishing, repurposing and remanufacturing of end-of-life or redundant products, movable assets and their components that would otherwise be discarded 3.b. Recovery of materials from waste in preparation for circular value retention and recovery strategies (excluding feedstock covered under 3.c) Waste Management
Identified Value Chains	Various waste streams, in particular the ones having an intrinsic low value such as plastics. This instrument is considered as less adequate for metals given their intrinsic value, properties and market which is global in nature. Additionally, offer and demand are intrinsically unbalanced geographically due to the relatively long lifetime of metal products (developed countries have large quantities of used metals whereas developing countries use large quantities of metals to support their urbanisation). It is preferable for the environment to ensure that scrap metals circulate relatively freely globally.
Benchmarking	--
Description of Impacts	Incentives to stimulate the demand for secondary raw materials together with measures to address exports of certain types of waste would contribute to stabilise the European recycling market, foster circular value chains and increase investments in R&D and infrastructures to improve the quality and quantity of materials available in manufacturing. The export of waste is essentially a reaction in relation to the lack of end-markets for secondary materials in the EU at a reasonable price. The environmental benefit will be linked to saved/reduced emissions stemming from recycling and the substitution of primary raw materials in manufacturing. An important side-effect is also the better chain communication, allowing designers to better understand the needs of the recycling industry.

Connection with other Incentives	Before implementing such an incentive, it is essential to stimulate through incentives, recycled content targets and eco-design the demand for secondary raw materials in manufacturing and improve products' recyclability to improve the quality of waste fractions. Recycling and incorporation in Europe can further be incentivised via Green Deals, Clusters and R&D subsidies. Landfill / incineration ban / tax if well applied could help stimulate the market for recycling. Input and consumption taxation, applying a tax on the use of virgin materials.
Additional Experts comments	
Inspection plans conducted by Member States must cover new requirements. Export bans will affect some countries and some waste streams more than other (e.g. the UK and Ireland were significantly affected by the Chinese ban for household waste. A high proportion of their collected household packaging waste was comingled and exported to be sorted abroad).	

19 Tradable recycling credit schemes

Tradable recycling credit schemes	
Instrument category	Enforcement & Implementation
Context	Recycling is both resource efficient and climate efficient. For example, recycling PET saves on average 70% of CO_2 emissions in comparison with primary materials. Yet, the market fails to reflect these positive externalities in price, solely set on the basis of offer and demand. To boost the transition towards a circular economy, it is important to reward the benefits of recycled materials throughout the value chain. This rewarding mechanism can play a role on both the supply side (EPR-schemes finance collection & sorting; see other incentive) and the demand side. A tradable recycling credit mechanism key advantage is that it acts on both the supply and the demand side, hence incentivising circular value chains at large.
Instrument description	**EU, national or regional level:** Description: "*…a tradable allowance system permitting the use of a certain amount of primary material on presentation of evidence that a certain amount of secondary material has been used 'somewhere else'. Those who use a higher proportion of secondary materials would generate credits to then sell on to the end users of primary material"*[67] This policy instrument aims at rewarding circular value chains using recycled materials instead of primary ones and hence contributes directly to internalising environmental benefits (in terms of resource-efficiency, CO_2 and energy savings) in the price of the recycling credits that markets currently fail to reward. Those credits can be traded between the responsible firms to incentivise the use of recycled materials throughout the value chain. The type of actors eligible for emitting credits, and those obliged to buy those credits can vary. This depends on the specific design of the policy. For instance[68]: • eligible companies are those turning waste into secondary raw materials which substitute primary raw materials; • obligated companies are manufacturers of products that contain secondary raw materials. In this case, manufacturers of the products containing secondary raw materials would be required to comply with a given recycled-content target.
Lifted barriers	Lack of consumer participation Low primary price of materials Unstable output market
Categorisation / Affected Life Cycle Stage	1.a. Design and production of products and assets that enable circular economy strategies through e.g. (i) increased resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair; (ii) use of materials that are recyclable or compostable. 1.b. Development and deployment of process technologies that enable circular economy strategies 1.e. Substitution of virgin materials with secondary raw materials and by-products Waste Management

[67] "*Analysis of Tradable Recycling Credit Systems: Review of Existing Policies and Consideration of Potential Policy Mechanisms*", Final Report to EFR & EUROMETREC, Eunomia 2012; chapter 4.4 Credits for End Use of Recycled Metals

[68] "*Metal markets and recycling policies: impacts and challenges*", Söderholm, P., Ekvall, T. Miner Econ (2019). https://doi.org/10.1007/s13563-019-00184-5

Identified Value Chains	Packaging, WEEE, furniture
Benchmarking	Regarding material recycling, Packaging Recovery Notes (PRN) are an example of tradable recycling credit. They were implemented in the UK from 1997 onwards. PRNs are issued by "accredited" reprocessors, depending on the amount of packaging waste that has been recovered or reprocessed. One PRN then corresponds to one ton of material has been reprocessed. The issued PRNs are bought by "obligated" companies handling packaging (material producers, manufactures, retailers…) to prove its compliance with a set threshold of PRNs ownership. This threshold depends on their position in the value chain, the amount of packaging handled, or the recycling targets set for packaging. A French paper[69] discussed the advantages and drawbacks of the PRN system in the UK, including for instance the high volatility of PRN prices, or the administrative costs related to its implementation. On the other hand, the British Department for Environment, Food and Rural Affairs made its own assessment[70] in 2017 and ruled that the PRN system is fit for purpose, entailing a low compliance cost of compliance for businesses. On the concept of Tradable Recycling Credits, an academic review of policy instruments in waste management[71] showed that they are a cost-effective solution, provided that the geographical scope of the trading system is the same as the geographical scope of the market. A similar system of tradable certificates exists for energy efficiency targets. The aim is then to boost renovation works in favour of energy efficiency by setting a market of tradable certificates testifying that energy efficiency has been improved, depending on a certain target. In France for instance, the Certificats d'Economie d'Energie (Energy Efficiency Certificates) have been successful in improving energy efficiency in various sectors (transports, agriculture, SMEs…) since their implementation in 2006.
Description of Impacts	--
Connection with other Incentives	Redundancy with EPR schemes in the case of UK's PRN, as the PRN trading system was used as a substitute of setting up EPR schemes for packaging. It is not the case if the tradable recycling credit scheme is designed not to attain the recycling objectives of a given directive (here Directive (EU) 2018/852 also "Packaging Directive"), but to increase the use of secondary raw materials for instance and hence support the circularity of value chains.
Additional Experts comments	
Tradable recycling credit schemes should be adapted to the new Circular Economy Action Plan with special attention on administrative burdens.	

[69] "Les packaging recovery notes (PRN) sont-ils économiquement efficaces ?", Adèle David Vaudey et Matthieu Glachant, Ecole des Mines de Paris, 2015, http://lodel.irevues.inist.fr/dechets-sciences-techniques/index.php?id=1617, https://doi.org/10.4267/dechets-sciences-techniques.1617

[70] "*The Producer Responsibility Obligations (Packaging Waste) Regulations 2007: post implementation review 2017*", July 2017 ; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/625963/post-implementation-review-producer-responsibility-obligations-july2017.pdf

[71] "Policy Instruments towards a Sustainable Waste Management ", *Finnveden et al.*, Sustainability, 2013, vol. 5, issue 3, 1-41

20 Subsidies

Subsidies	
Instrument category	Economic instruments (tax & subsidies)
Context	Many circular economy solutions are prevented by market failures that make circular activities economically unfeasible. It can be the price of virgin materials, non-existence of the market with secondary materials, lack of knowledge and information about the economic potential of circular solutions. In this situation signals can be given to private actors by providing financial stimuli.
Instrument description	**EU, national, regional or local level:** **Subsidies are transfers from the public budget to private actors (organisations or individuals) that incentivise the private actors to change their behaviour by providing financial reward.** This reward can cover the whole but most frequently only a part of the cost associated with the desirable change of behaviour so that there is a co-financing of the change by the private actor. An example of a subsidy is a payment to a farmer for adopting agro-ecological method of food production or a feed-in tariff for producers of renewable energy. Subsidies can be seen as a counterpart for taxation – in this case, the stimulating factor is not the financial punishment but the financial benefit. While taxation is often used to also raise funds to the public budget, the disadvantage of a subsidy is that it is a public expenditure and a cost for the public agency that provides the subsidy. Subsidy can have the form of a direct transfer of money from a public agency to a private economic actor, like in the examples above. The design of a subsidy scheme can vary depending on what is the desirable change in behaviour. It can have the form of a lump sum payment or payment depending on the amount of activities or products that are incentivised. An example of a lump sum is an old car-scrapping scheme where all private actors receive the same amount for recycling of an old car. An example of a variable incentive is that the transfer can be conditional on the proof that the desirable activity has happened. Sometimes the subsidy can have an in-kind form when the economic actor does not receive money but rather a product or service that would otherwise have to be paid, for example a technical assistance. An example is a scheme paid by the local authority that provides experts who do free estimation of the cost of energy efficiency measures, e.g. insulation, and help households to develop a project. Subsidies are strong incentives and can have a quick and significant effect on the market. This effect can be very distortive and affect even global markets. This is why subsidies are generally considered as dangerous tools both from the market and public budget perspectives. There are international trade rules that in general forbid subsidies except in justifiable reasons including environmental ones. In the EU a system of State Aid rules at the EU and national level exist. This creates the legal framework for subsidy schemes. Every subsidy scheme has to be checked against these rules. Subsidy schemes should clearly deliver on public objectives, be non-discriminatory, proportionate to its objective and short-term. Subsidy schemes can exist at different levels. At EU level there are large-scale subsidy schemes that consume almost all the whole EU budget. The largest and most influential are: • The Common Agricultural Policy – provides subsidies to farmers. • The Cohesion Policy and its financial instruments like the European regional Development Fund – provides subsidies to Member States for regional development activities • European R&I programmes – provide grants to research projects. All these schemes have environmental components so subsidies from these schemes also target environmental objectives, many of them related to circular economy, e.g. subsidies to farmers for production of bio-based subsidies to construction of recycling facilities. There are subsidy schemes at national level. Many member states subsidy farmers, SMEs or selected economic activities, especially regions with some structural

	problems, high unemployment, etc. by different types of subsidies. Subsidies can also be provided by regional and local authorities. Most likely it is done in an indirect form by providing economically valuable services, e.g. providing/renting public land, work space in publicly owned buildings and facilities, use of public infrastructure (roads, water and sewage systems, telecom networks, etc.), provision of services (advisory, technical assistance, communication in public media).
Lifted barriers	Level playing field, removal of market distortions due to the lack of integration of environmental and resource costs in the price of products and services.
Categorisation / Affected Life Cycle Stage	In theory, subsidies could be used to stimulate all categories of CE activities. Subsidies could be used in those situations when fast and substantial modification of the current practices is needed or to address lock-in into the existing infrastructure and technology. An example can be subsidies to bring innovative new technology/solution to the market. An example can be the subsidies to first market applications of new technologically advanced recycling plants, industrial symbiosis clusters, etc. In urban set up public authorities may want to introduce circular economy schemes close to citizens that can also be considered as public service, e.g. repair shops and sharing platforms. They may want to subsidies local firms to introduce such services in the local markets.
Identified Value Chains	Subsidies already exist in value chain with large material throughput and potentially important for Circular Economy, e.g. in automotive and construction sectors. Most of these incentives do not have direct objective to stimulate circular economy but can still contribute. These schemes could be modified and new schemes could be developed that directly target circularity or at lease include circularity conditions. For example, schemes subsidising reconstruction of buildings could have the condition to apply circular principles, methods and products. Another area where subsidies could have for reaching impact is the 'continuous industry' or production of bulk materials for production of final products. Subsidies could help overcome the market barrier and high CAPEX costs, and establish value chain that can, after reaching certain scale continue without further subsidies. This may include subsidies to the development of regional circular economy industrial hubs for industrial symbiosis or large-scale installations. At local level local subsidies may create local value chain based on the specific potential of that location. For example, in cities with administrative districts a new value chain based on refurbishment of office furniture could be subsidies to develop local circular SMEs.
Benchmarking	Given the potential wide use and impact great care has to be given to the design of the subsidy scheme. **It has to meet the State Aid rule (or obtain an exception from a regulatory agency) and be technologically neutral and non-discriminatory provided that environmental objectives have to be defined and the design of the subsidy has to be proportionate to this objective**. Eligibility criteria have to be clear and measurable and also easily controllable by the public authority so the risk of misuse is small. Budgetary aspects – the availability of funds is a critical design feature. An example of a subsidy implemented to support circular economy is a bonus system for integrating recycled material is applied in France: the OrPlast system ("*Objectif Recyclage Plastiques*") aims at financially supporting the integration of recycled materials by plastic converters or any industry transforming raw materials into products[72]. This tool includes financial support for incorporating recycled materials up to 200 k€ by recipient, provided the applicant has been selected in a public call for tender organised by the French Energy Agency (ADEME).
Description of Impacts	--

[72] ORPLAST 2 - édition 2018, Objectif Recyclage PLASTiques, Version du 22 septembre 2017, « *Dispositif de soutien de l'ADEME, visant à soutenir financièrement l'intégration de matières plastiques recyclées par les plasturgistes ou transformateurs* ». - Accessed at: https://appelsaprojets.ademe.fr/aap/ORPLAST2017-68

Connection with other Incentives	Subsidies can be combined with other incentives to achieve a greater impact. It is possible to combine tax with subsidy to disincentivise some environmentally damaging activities and raise funds to subsidise environmentally friendly activity. An example may be a combination of a landfill/incineration tax combined with the subsidy to develop recycling infrastructure where diverted waste can be recycled.
Additional Experts comments	
As any other incentives the key decision is what to incentivise. It is important to understand possible scenarios of development so the public agency does not design a scheme that will lock in the economy into suboptimal solution. Potential side effects and the rebound effects must be considered.	

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Incentives aim at addressing market failures that prevent or delay the transition towards circular products, services and solutions. They play an instrumental role in pricing negative externalities, steering markets towards sustainability and driving behavioral changes. Incentives have the ability to create value, de-risk investments and improve the competitiveness of value chains that bring net environmental benefits when compared with linear economies. They also yield benefits to the economy and society.

This guidance document aims to support public authorities in identifying the most suited incentive or combination of incentives to speed up the transition towards a circular economy at national, regional or local level. As these incentives target different market failures or barriers; their type, combination, associated costs and infrastructure of implementation, temporality or scope; their relevant level of enforcement will inherently vary.

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