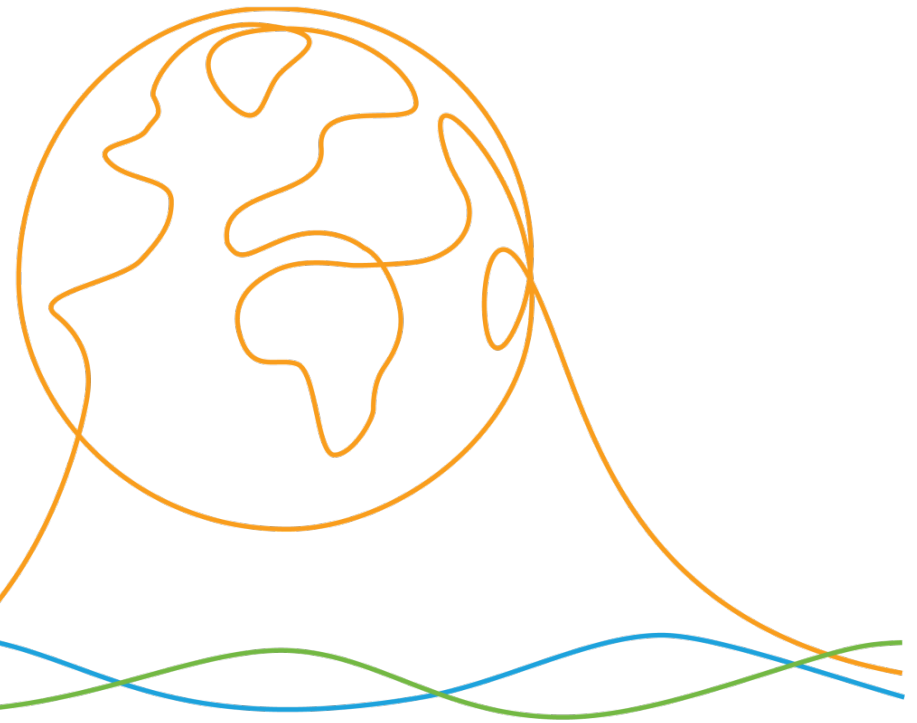




Circular economy principles - quantifying the additional greenhouse gas savings potential of products covered under ecodesign

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eccee Summer Study
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The Collaborative Labelling and Appliance Standards Programme

- Mission: CLASP improves the energy and environmental performance of the appliances & equipment we use every day, accelerating our transition to a more sustainable world.
- Non-profit, non-governmental organisation
- Established since 1999, have worked in over 50 economies
- Dedicated programmes in Europe, India & China
- Respond to the assistance needs of standards and labelling practitioners in targeted countries and regions
- Provide technical support to governments
- More about us: www.clasp.ngo

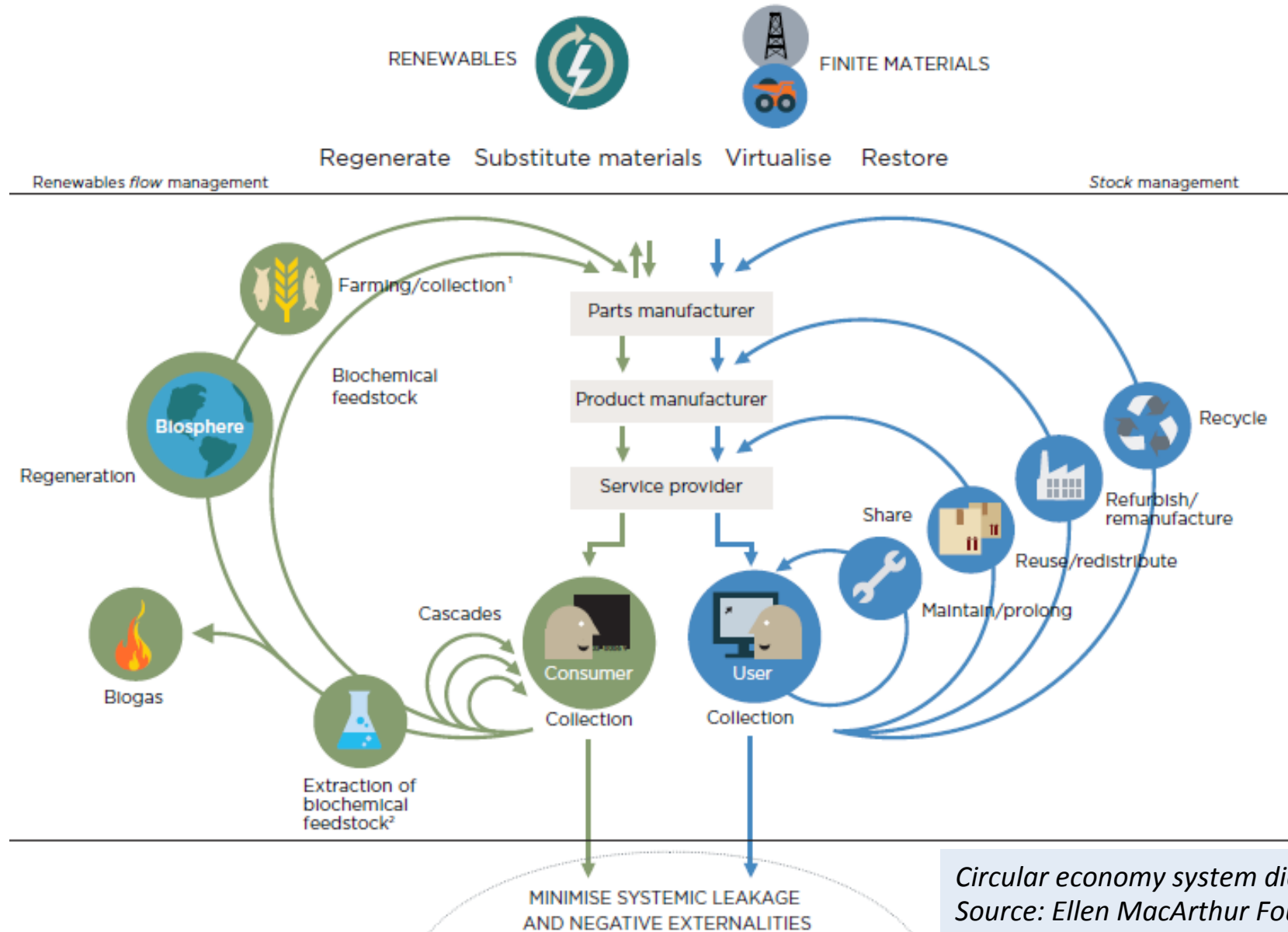


The study - context

A circular economy is restorative and regenerative by design, and aims to keep products, components, and materials at their highest utility and value at all times.

Ellen MacArthur Foundation

The study - context



EU Policy context

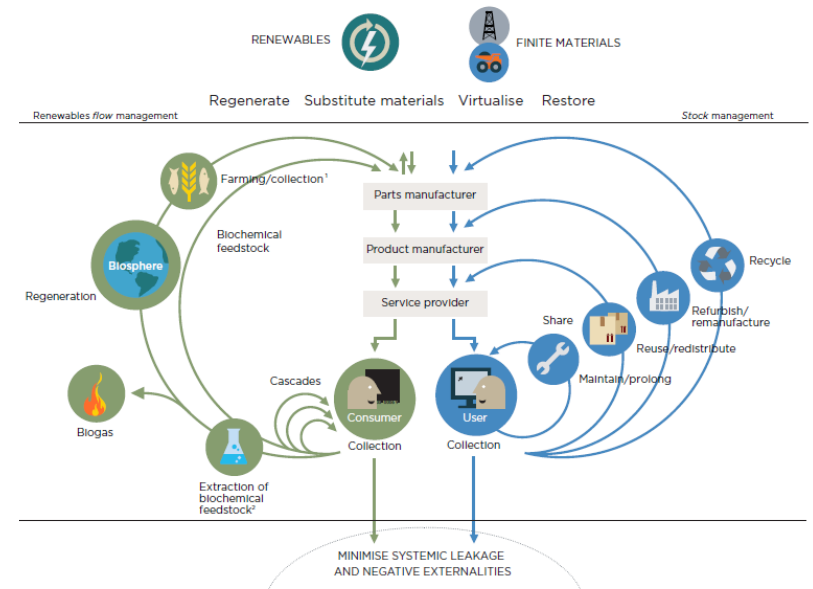


- Circular economy package – 2 December 2015
 - “The transition to a more circular economy, where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised, is an essential contribution to the EU's efforts to develop a sustainable, low carbon, resource efficient and competitive economy. Such transition is the opportunity to transform our economy and generate new and sustainable competitive advantages for Europe.”
- Clean Energy For All Europeans – November 2016
 - Ecodesign and energy labelling: “Following careful consideration, the Commission decided to reinforce the focus of the policy on products with the highest savings potential in terms of energy and **circular economy**.”

The study - general approach

Scope

- Products
 - Energy using products under Ecodesign - over 30 products
- Timeline
 - 2020 sales
- Circular Economy interventions:
 - Improved recyclability
 - Improved durability
 - Service economy



Limitations

- Exploratory study - hypothesis could be refined

The study - methodology

Circular Economy approaches considered

- Improved **recyclability**
 - 5 groups, reference products and extrapolations
- Improved **durability**
 - Modelled for each product, maximum 10 year extension
- **Service economy**
 - 3 scenarios:
 - High adoption rate
 - Low adoption rate
 - No effect on efficiency

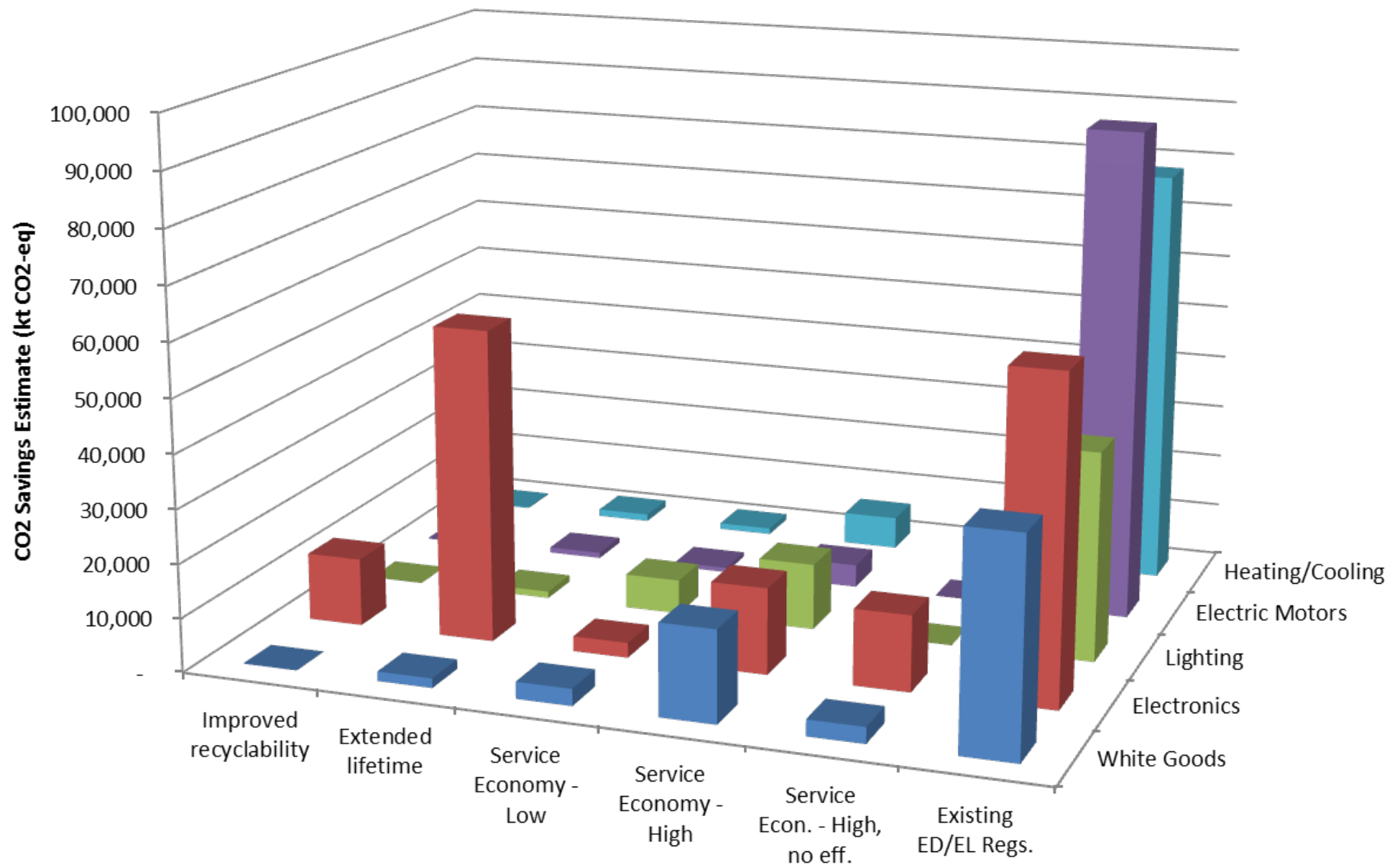


The study - methodology

- Service economy scenarios

Factor	Limited Adoption Scenario (LA)	Broad Adoption Scenario (BA)	Improved refurbishment / Average efficiency Scenario (IR-BA)
Market adoption rate	10%	50%	
Impact of refurbishment and maintenance	One repair/refurbishing/upgrading every five (5) years Each equivalent to 10% of the kg CO2 impact of initial production		
Lifetime	The average lifetime of a leased product 1.5 times longer than baseline average		
Efficiency	Leased products are assumed to be more efficient than the average non-leased product (varies by product)		Same efficiency as average non-leased product
Impact of a better design for dismantling, repair and recycling	0%	A 20% reduction in the impacts of the extraction of material and of the end-of-life for the base case	

Main results - the numbers



Main results - the numbers

	Recycling	Extended Life	Service - Low Adoption	Service - High Adoption	High Adoption - Average Efficiency	ED / EL Savings
<i>Unit</i>	<i>(kt CO₂-eq)</i>					
White Goods	71	1,762	3,138	17,014	3,023	39,600
Cons. Elec.	12,632	57,991	2,787	16,027	14,115	60,000
Lighting	0	1,238	6,399	12,365	n.a.	38,822
Motors	208	1,028	854	4,279	1	91,200
Heating Cooling	189	1,340	1,148	6,069	716	78,100

Main results - priorities

- Large potentials - products
 - Consumer electronics
 - White goods & lighting if linked to efficiency improvements
- Large potentials - types of improvements
 - Recyclability and durability: for consumer electronics only
 - Improvements linked to energy-efficiency



Opportunities - current trajectory

Will these opportunities be captured by the industry on its current trajectory?

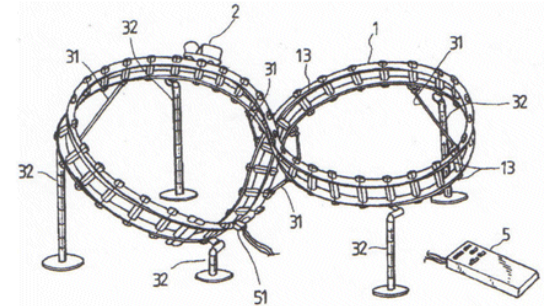


What are the gaps/barriers that prevent the opportunities from being captured?

What are useful interventions from policy makers and philanthropy?

Opportunities - current trajectory

- European Commission Circular economy package
 - Policy instruments proposed and in place
 - Circular Economy Action Plan
- Industry resistance
 - Delay of the TV regulation after the announcement in the Circular Economy Action Plan
 - Perceived as more constraints and less sales
- A few front-runners / early adopters
 - Fair-phone
 - Philips's pay-per-lux
 - Bundles with Miele machines - www.bundles.nl
 - SEB reinvesting in repair
 - L'increvable - etc.



- Policy framework:
 - Proposals on waste -> powerful enough to significantly impact design?
 - Mention of Ecodesign in Action Plan
- Not a small change - shift of business model:
 - From selling *products* to selling *services*
 - Shift design incentive
 - Higher transaction costs, staff costs (design, repair...) and lower sales
 - Customer attachment to ownership?



Main Finding and Next Steps

- Found the estimated emissions reduction potential for some product groups exceeds the savings from ED/EL.
- Future areas of research could include:
 - Economic assessment - evaluate economic impacts of the circular economy - cost/benefit, investments/financing, etc.
 - Detail on best opportunities - drill-down in more detail products offering the greatest GHG saving potential
 - Policy measure study - research appropriate policy mechanisms to encourage a market transition to a circular economy (other sectors, economies...);
 - Focus on other priority products - a scoping study for products with high level of embedded carbon
 - Shared resources - evaluate savings via policy incentives that promote a sharing economy in relation to certain ecodesign products (e.g., super-efficient washing machines and tumble driers, game consoles, printers).

Potential interventions (1 of 2)

- From policy makers
 - Strengthen targeted policy framework
 - Adapt taxation (labour vs. natural resources)
- From philanthropy
 - Support policy makers in the definition of an effective legislative framework and ambitious rules
 - Reports and papers
 - Circular Economy Advisory Panel
 - Work with Circular Economy champions in industry
 - Look for examples from other economies or sectors

Potential interventions (2 of 2)

- More details on some potential interventions
 - Reports and papers
 - Identify best practices from other sectors that apply to circular economy - work with Circular Economy champions in industry to convince the EC and other industry stakeholders
 - Product specific in-depth analysis - use history in ecodesign
 - Establish an Advisory Panel: Group of industry, retailers, consumers, green NGOs, academics, to reflect on how to implement Circular Economy principles
 - Communication to consumers / Positive messaging on sufficiency

Any Questions?

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Study available on our website

<http://www.clasp.ngo/Resources/Resources/PublicationLibrary/2016/Potential-Greenhouse-Gas-Emissions-Reduction-from-applying-Circular-Economy-Principles>