Sustainability Research Institute
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Integrating resource efficiency into climate mitigation policy in the EU

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Objective

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A greater integration of resource efficiency within climate mitigation policy can contribute substantially to abating emissions

The problem

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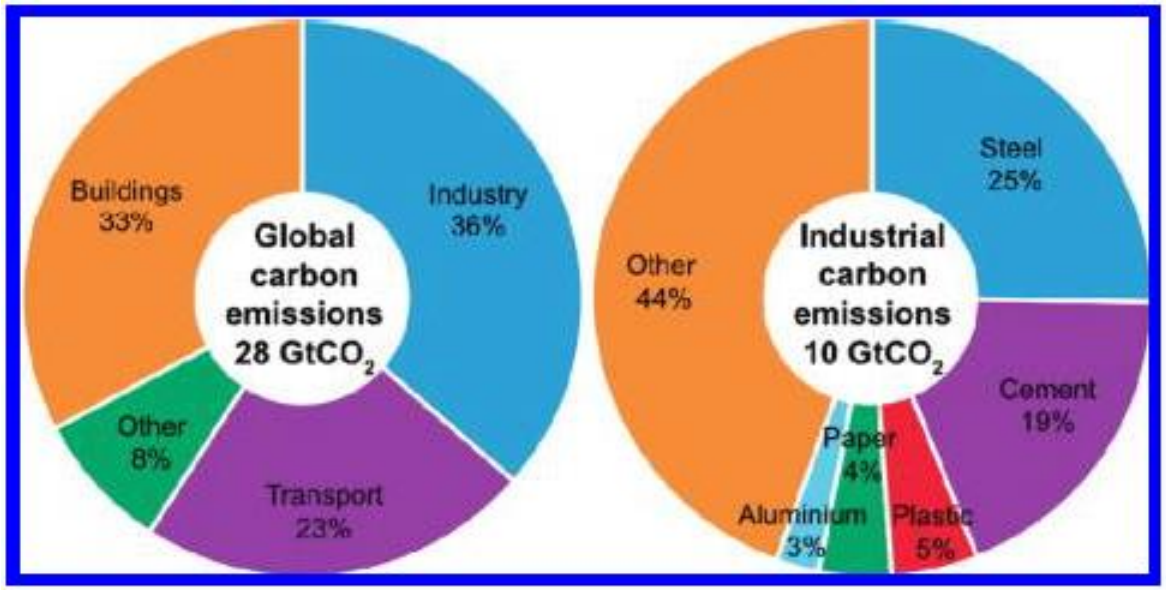
- Global emissions on trajectory > 2
- CC linked to material requirements
- 5 key materials = 20% global emissions
- Material demand is rising



ALLWOOD, J. M., CULLEN, J. M. & MILFORD, R. L. 2010. Options for Achieving a 50% Cut in Industrial Carbon Emissions by 2050. Environmental Science & Technology, 44, 1888-1894.

The literature

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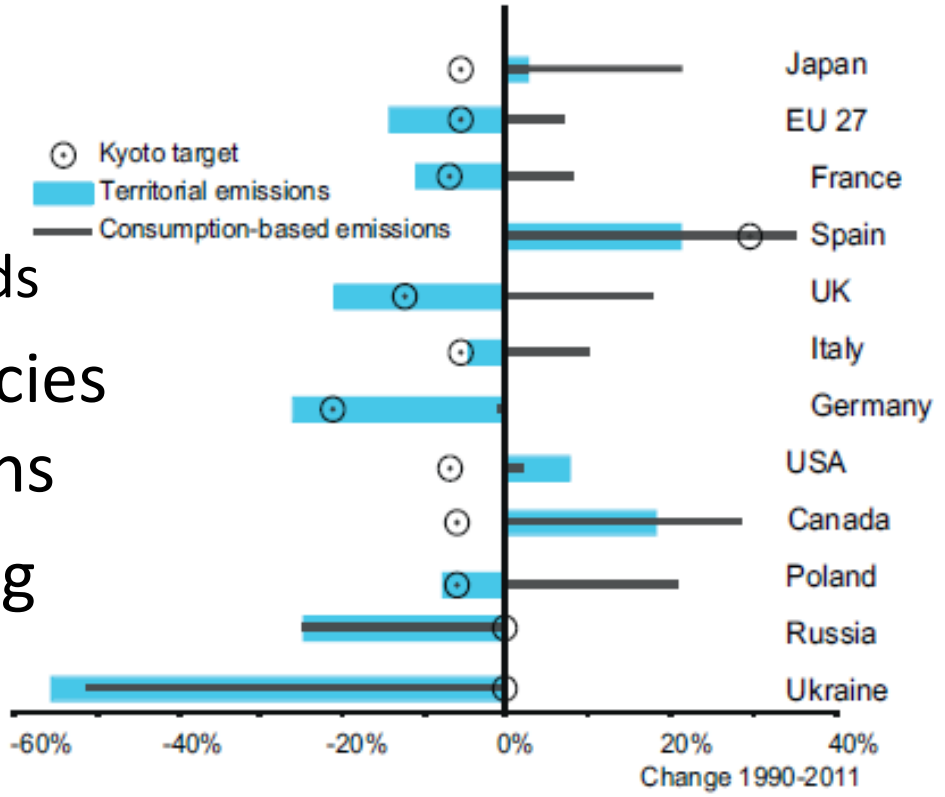
- Materials and emissions embodied in consumption
  - Different BU and TD methods
- Trade and fragmented policies undermine domestic actions
- Responsibility for mitigating impacts



KANEMOTO, K., MORAN, D., LENZEN, M. & GESCHKE, A. 2014. International trade undermines national emission reduction targets: New evidence from air pollution. Global Environmental Change, 24, 52-59.

The EU context

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Exemptions

Rebounds

Waste management

Climate policy

EU ETS and Energy Efficiency

Emissions reduction targets, renewable energy targets and energy efficiency targets

Resource Eff. policy

Roadmap to Resource Efficient Europe and Circular Economy

GDP/ DMC

Carbon leakage

Upstream material demand

The missing link

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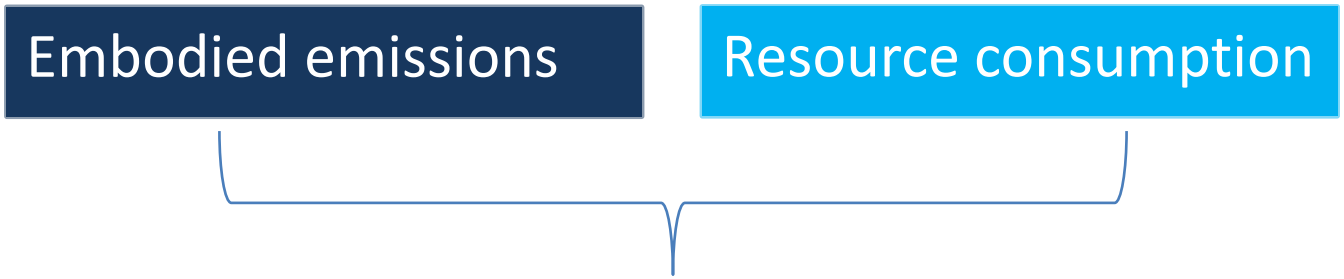
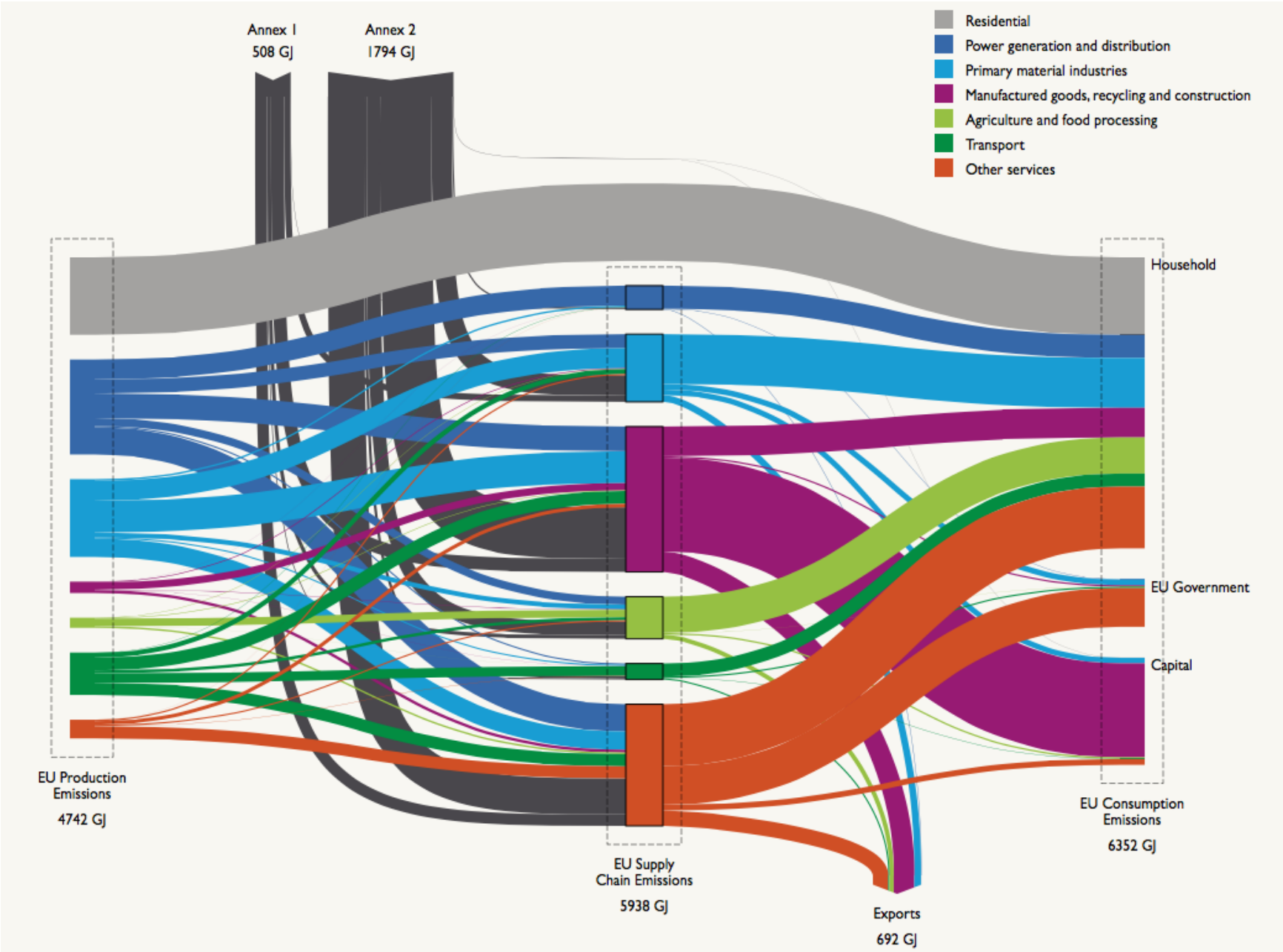


1. what are the emissions associated with resource consumption in the EU, and how much originate outside the EU?
2. how many of these emissions are captured within existing EU climate mitigation policy?
3. how much additional emissions could EU climate policy capture by extending its policies to address the embodied impacts of products?
4. how much of the EU's legislative emissions reductions could these deliver?

Emissions from resource flows in and out of the EU



Emissions captured within EU climate policy

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Policy		Sectors	Coverage	Excluded
EU ETS		Industry	40%	Imported
Energy efficiency	Vehicle emissions standards	Cars	Operational	Embodied
	Energy Performance of Buildings	Buildings	Operational	Embodied
	Ecodesign Directive	Energy-using appliances	Operational	Embodied

Misses [x] Mt imported emissions

Cross-over between EE & ETS

Rebound effect

Extension of climate policies to account for resource use

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	Policy	Operational	Embodied	EU ETS	Outside policy
Existing	Vehicle emissions standards				
	Energy Performance of Buildings				
	Ecodesign Directive				
Extension	Non energy-using products				

BUT….

We wouldn’t be affecting final demand

Delivering EU climate targets

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- Can we just extend existing policies?
- Can we do it without affecting demand?
  - Carbon content/ lifetime
- Will this undermine existing policies?
- What support mechanisms are needed?
- Are the methods in place to implement policies based on the embodied carbon content of all products?
  - If accounting becomes mandatory

Method – Multi-region input-output analysis (MRIOA)

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- Why MRIOA?
  - Provides a unique framework which includes embodied emissions for all goods and services
  - Foundational framework to identify supply chain intervention points
  - Economy-wide perspective enables calculation of policy cross-over
- Limitations
  - Physical flows defined by monetary transactions
  - Sector/ product aggregation
- Why not MFA?
  - Adds emissions factor without spatial information
  - Detailed for some products, limited for others