Carbon footprint of materials
A blind spot of national low-carbon strategies

A case study on France

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Background

Paris agreement & National NZE strategies

- **Renew existing domestic infrastructures and equipment**
- **Energy supply, Transport, Buildings (and Industrial processes)**
- **Focusing on direct territorial GHG emissions**

Potential risk to overshoot Paris agreement target

- **Indirect GHG emissions embodied in imports**
- **Base carbon-intensive materials embodied in capital goods**

Research gaps

- **Contribution of materials supply to carbon footprint at national scale?**
- **Ability of national NZE strategy to reduce burden?**
- **Public policy levers to reach carbon footprint neutrality by 2050?**

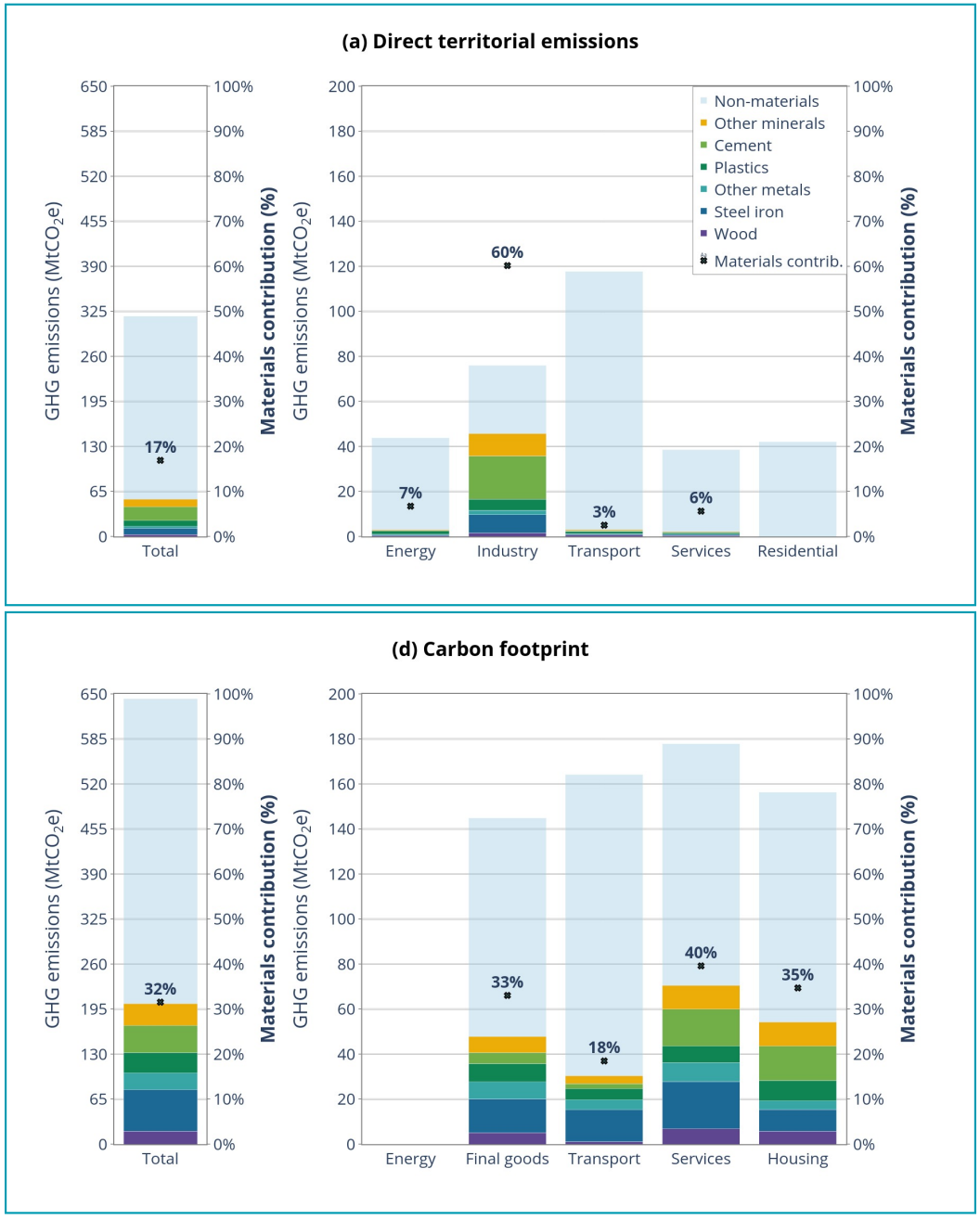
Methods

Hybrid Input-Output model

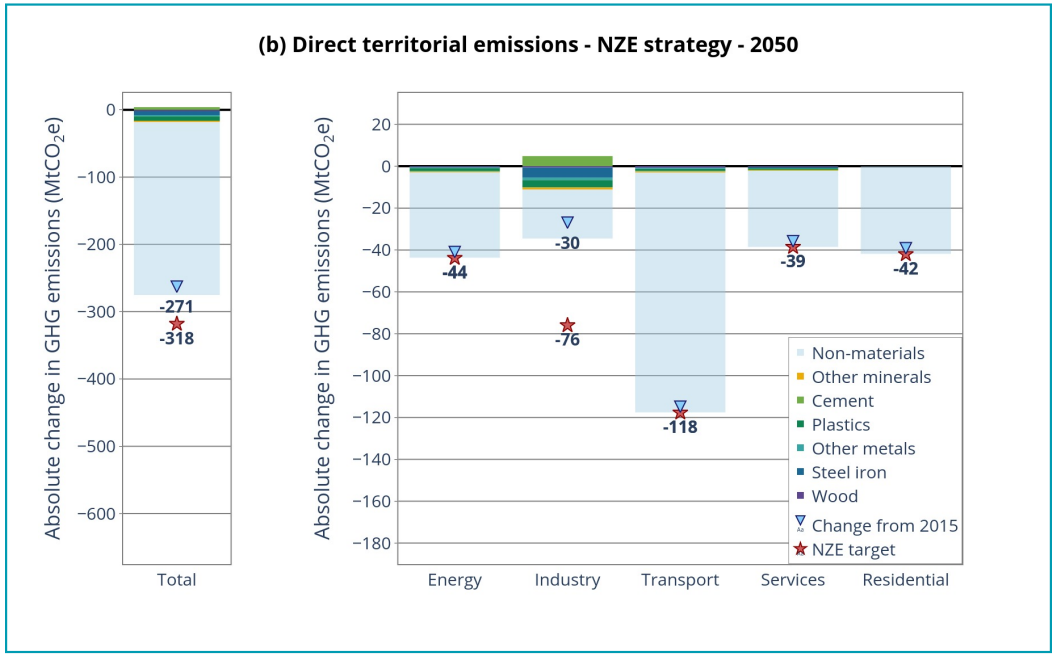
- **Physical fluxes: Energy, Materials & GHG emissions**
- **Capital matrix & Investment endogenization**
- **Hypothetical extraction method on Materials**

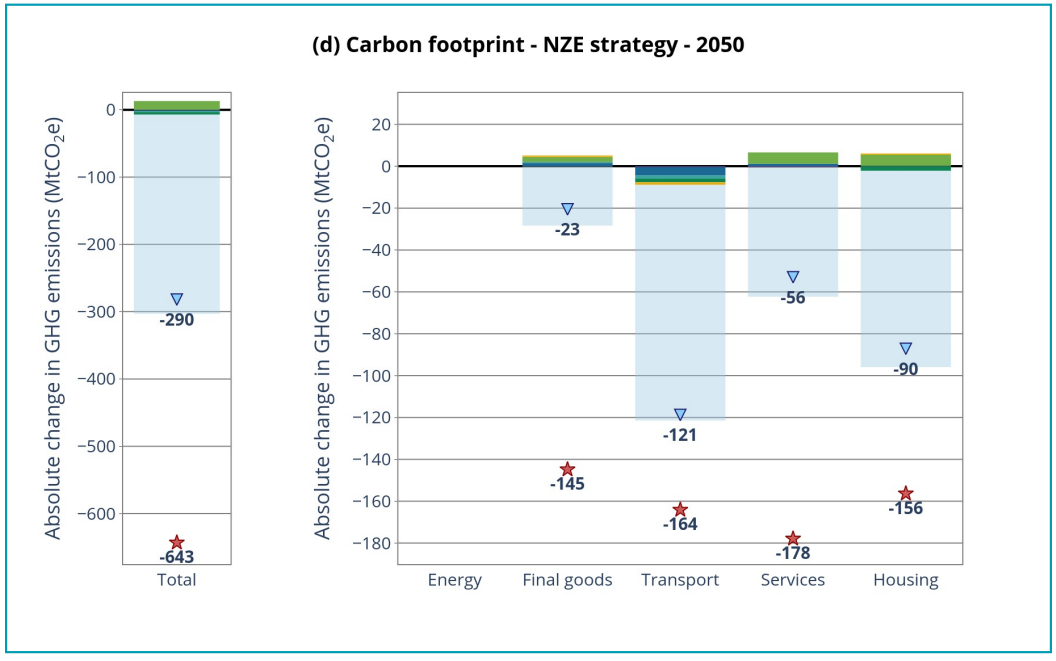
Shock building for prospective analysis by 2050

- **Current policies scenario in France and abroad**
- **NZE scenario based on existing domestic strategy**
  - Energy efficiency gains
  - Capital content of production
  - Demand in energy services



Contribution of materials supply to GHG emissions of France in 2015.





Absolute variation of GHG emissions of France from 2015 to 2050

Discussion

Key results: The carbon footprint of materials in France...

- **... should be a main focus of climate policies**
  - Territorial emissions from materials supply: 54 MtCOe
  - Carbon footprint of materials supply: 200 MtCO2e ; 3 tCO2e/cap
  - Transportation, housing, durable goods and services
- **... is a blind spot of the current NZE strategy**
  - Only reduces the carbon footprint by 40 % by 2050
  - Unabated materials contribution : 60 % of carbon footprint by 2050
  - Imports of equipment and materials

Public policy in France

- **Border policies supporting imports of clean industrial products**
- **Fostering low-energy demand policies**
- **Relocating low-carbon industries through circular economy policies**

Contacts

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