

# Use Less

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**Harmful releases**

Ozone depletion

Acidification

Eutrophication

Photochem. smog

Terrestrial toxicity

Aquatic toxicity

✓ Technical substitutes implemented after lobbying

Global warming

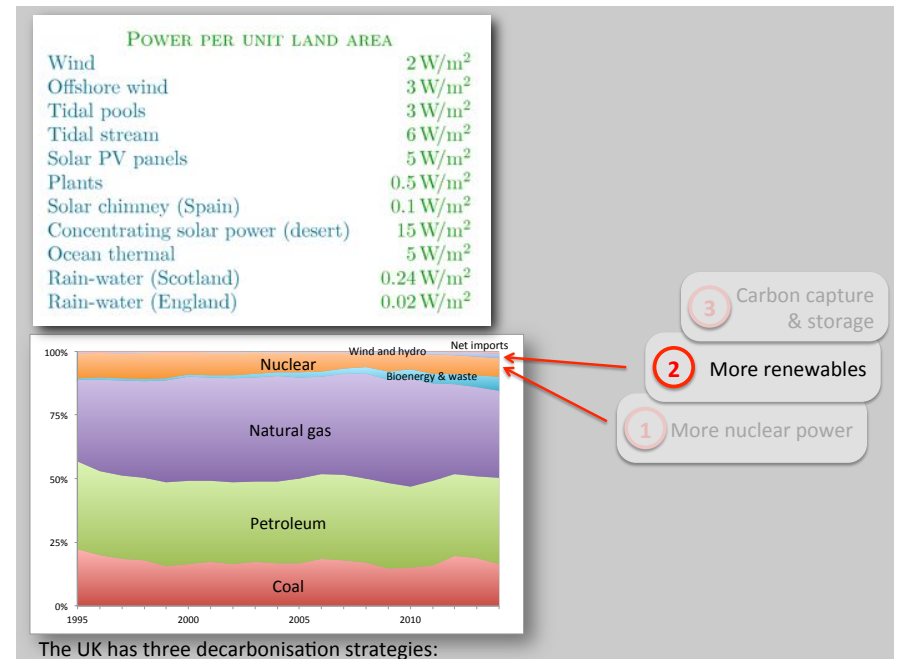
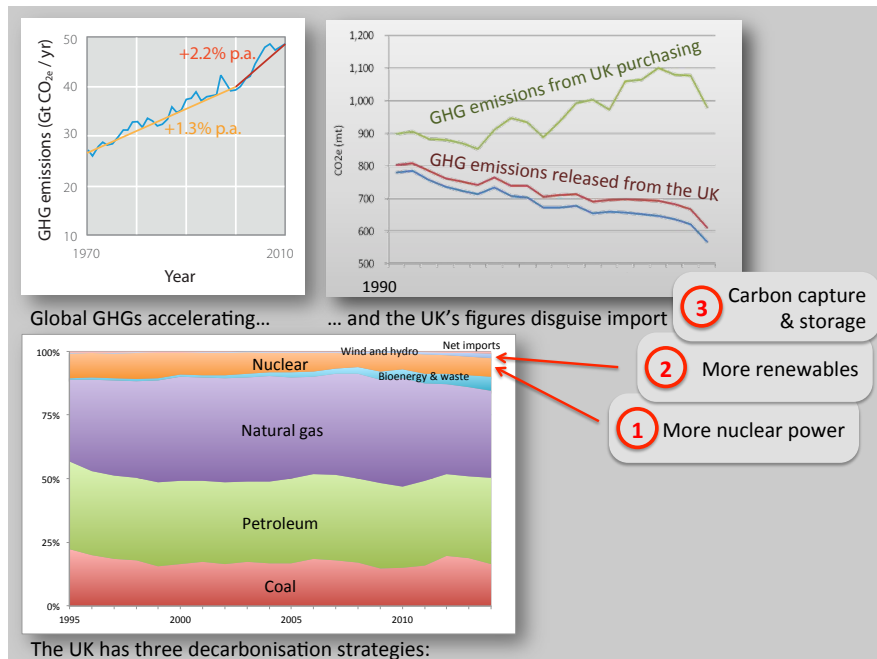
✗ No substitutes:  
Use more energy

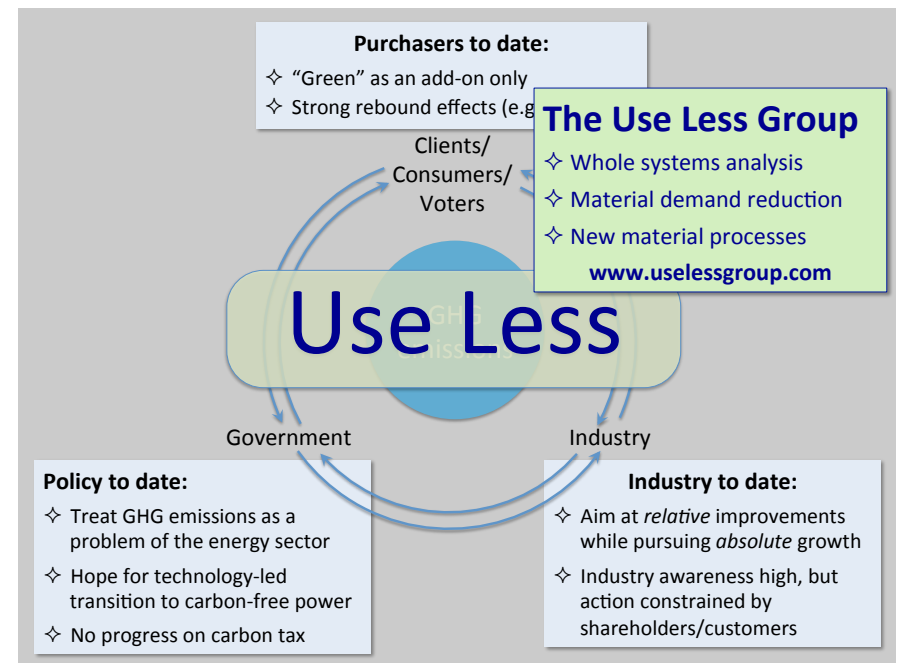
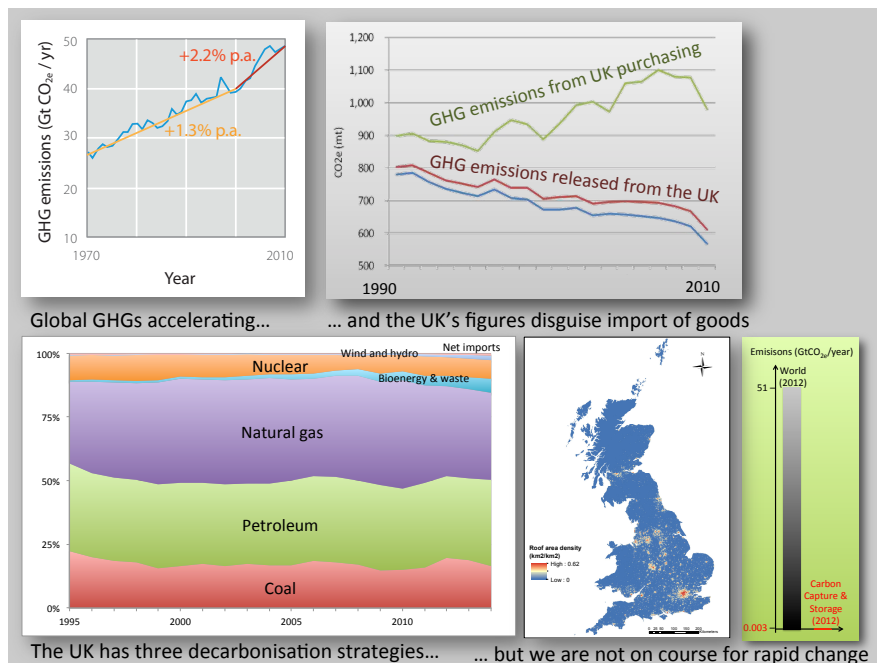
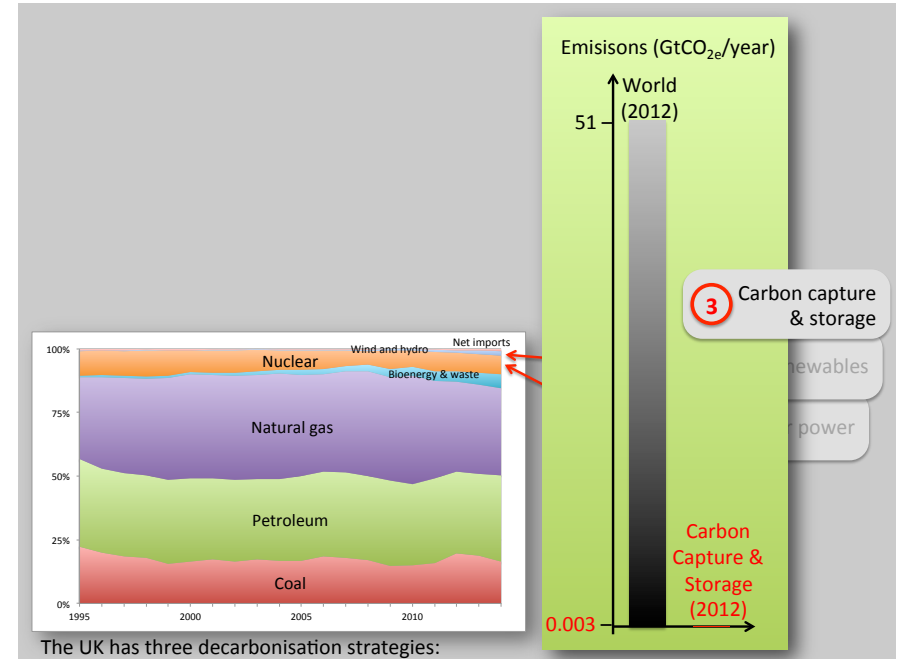
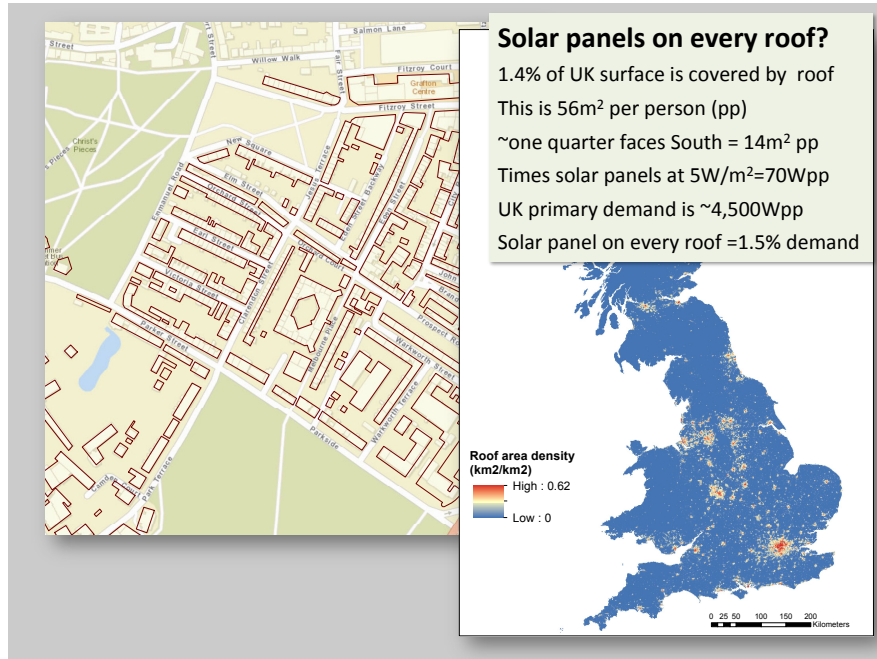
Land use

Water use

Resource depletion

Constraints



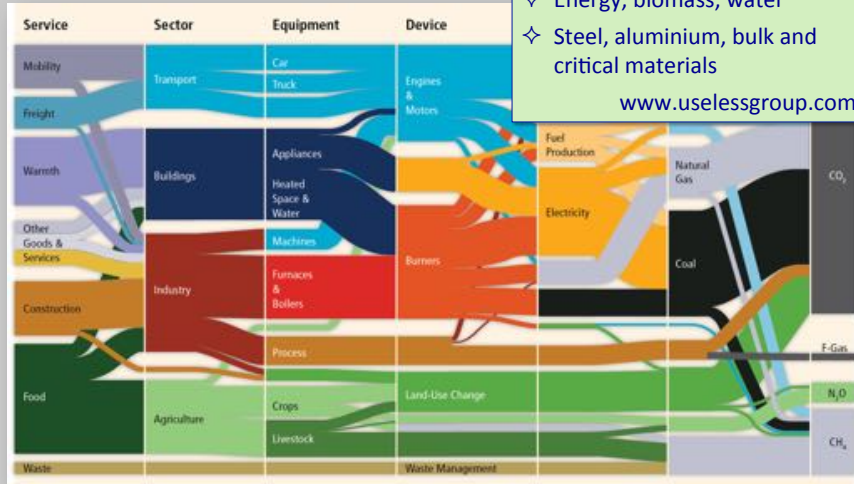


### Whole systems analysis

Top down analysis of:

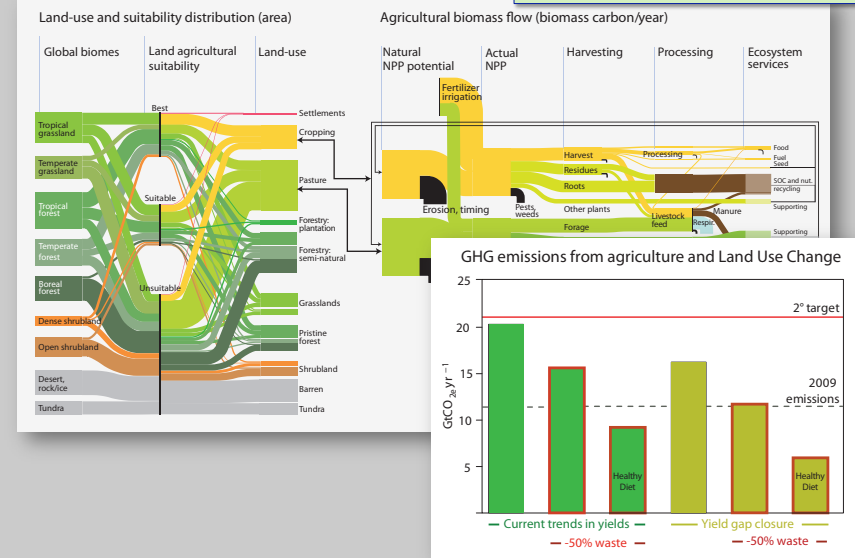
- Energy, biomass, water
- Steel, aluminium, bulk and critical materials

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### Whole systems analysis

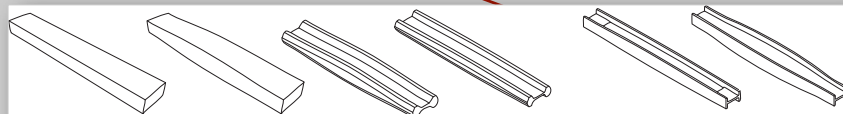
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### New material processes

[www.uselessgroup.com](http://www.uselessgroup.com)

Make it lighter



Re-use material

Divert Scrap

Avoid scrap

### New material processes

[www.uselessgroup.com](http://www.uselessgroup.com)





### New material processes

[www.uselessgroup.com](http://www.uselessgroup.com)

Lost  
Added to stock

IR  
vis  
UV

bleaching under print and blank areas

sliced fibres

Reduse

[www.reduse.co.uk](http://www.reduse.co.uk)

### Material demand reduction

Sectoral focus:  
✦ Construction

Utilisation ratio

- 0.75 - 1.0
- 0.5 - 0.75
- 0.25 - 0.5
- 0 - 0.25

In construction, we use much more material than we need to keep buildings for two times their life.

But at present in the UK, we use double the material required and keep the buildings for half their life.

### Reducing Material Demand in Construction

A Prospectus for meeting the UK Government's "Construction 2025" ambitions for capital carbon emissions

UNIVERSITY OF CAMBRIDGE

### Whole Systems Analysis

Dr Zenaida: Energy Systems  
Dr Dennis: Land & water  
Dr Sandy: Economics  
Dr Rick: Resource systems  
Ying: China resources

### The Use Less Group

[www.uselessgroup.com](http://www.uselessgroup.com)

### Material Demand Reduction

Dr André: Stocks & flows  
Søren: Clothing  
Dr C: Cars  
Dr X: Construction  
Dr Y: Construction  
Karin  
Kirsten

### Support

Caroline  
Julian

### New Material Processes

Dr Evros: design  
Chris: rings  
Pippa: scrap  
Katie: circles  
Designer D  
Jon and his group...  
... others

### The Use Less Group

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Achievements	Impact	Future plans
<h4>Whole Systems Analysis</h4> <ul style="list-style-type: none"> <li>New focus on absolute impacts</li> <li>Studies of key resources</li> <li>Most inter-disciplinary work in CU</li> </ul>	<ul style="list-style-type: none"> <li>IPCC 5<sup>th</sup> Assessment Report</li> <li>Energy Research Partnership</li> <li>Arcelor Mittal, Emerson, BP...</li> <li>WorldSteel type org's, speeches...</li> </ul>	<ul style="list-style-type: none"> <li>Startup: Foreseer Ltd.</li> <li>Data estimation &amp; reconciliation, aiming at global coverage</li> <li>23 Nov: CU Demand Red<sup>n</sup> seminar</li> </ul>
<h4>Material Demand Reduction</h4> <ul style="list-style-type: none"> <li>Communicating that material demand drives industrial emissions</li> <li>Strong relationship with steel and construction sectors</li> </ul>	<ul style="list-style-type: none"> <li>"Sustainable Materials" book</li> <li>Six Whitehall departments</li> <li>Construction Profession Network</li> <li>G7 Alliance on Resource Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Sectors: cars, clothes, cement.</li> <li>Two Innovate UK projects</li> <li>New collaborations with Economics &amp; London Sch. Fashion</li> </ul>
<h4>New Material Processes</h4> <ul style="list-style-type: none"> <li>Seven patent applications</li> <li>New approach to closed-loop control in metal forming</li> <li>Insights into process mechanics</li> </ul>	<ul style="list-style-type: none"> <li>Pipeline of development to MTC</li> <li>Startup: Reduse Ltd.</li> <li>International Academy of Production Engineering (CIRP)</li> </ul>	<ul style="list-style-type: none"> <li>Flexible ring rolling</li> <li>Process X</li> <li>Automatic process design</li> <li>Hosting ICTP 2017 with Baldrick!</li> </ul>