

HOUSING FIT FOR A CLIMATE EMERGENCY: WHOLE LIFE CARBON THINKING

Eilidh Forster

Twitter: [@eilidh_forster](https://twitter.com/eilidh_forster)

INTRODUCTION

Committee on climate change recommendations:

Increased forest cover to 17%

- No clear plan, planting targets failing, no emphasis on commercial forestry

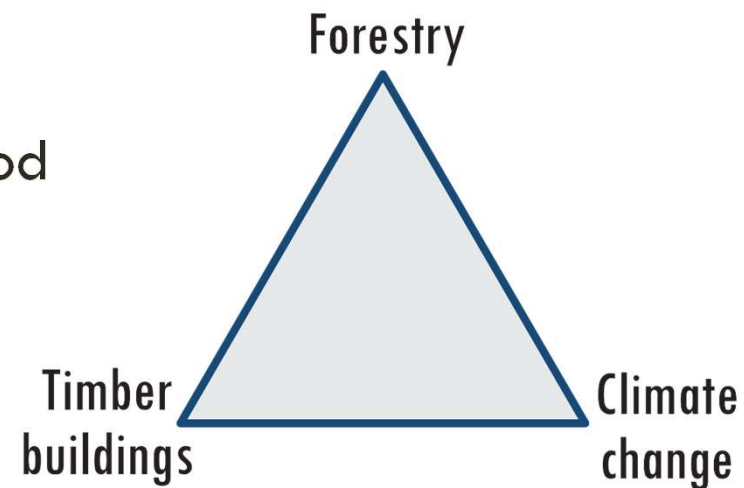
Timber frame housing on new builds by 2025

- How will increased timber demand be met?

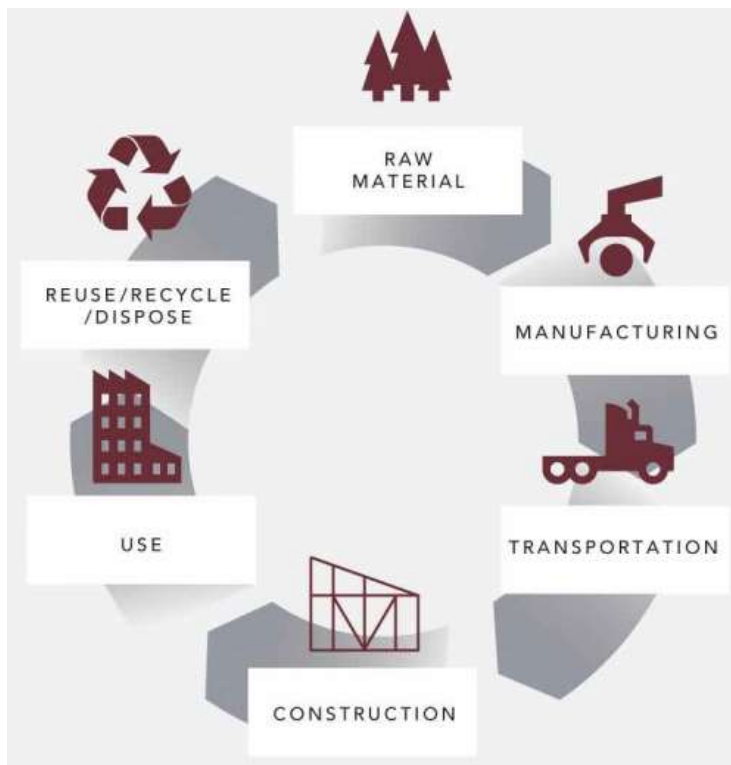
Important relationship

OBJECTIVES

- Introduce whole life carbon thinking (life cycle assessment)
- Describe key factors affecting climate change mitigation potential of wood
- Demonstrate environmental importance of wood in construction

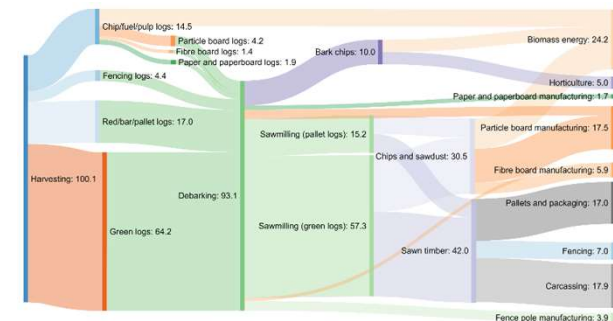


LIFE CYCLE ASSESSMENT – WHOLE LIFE THINKING



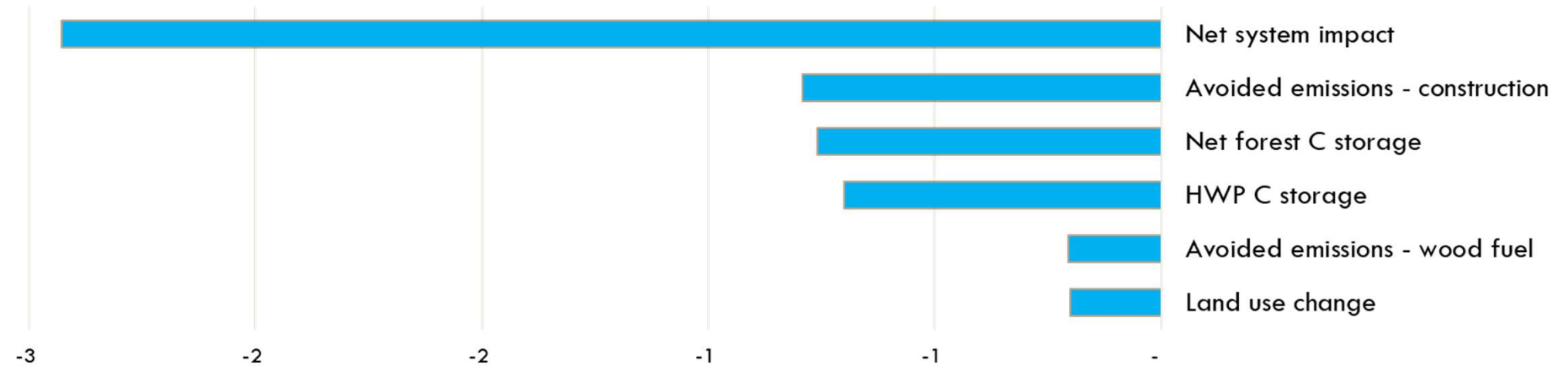
<https://www.naturallywood.com/wood-design/life-cycle-assessment>

- Calculate all materials and energy used
- Calculate all environmental emissions
- Convert emissions into environmental impact units (e.g. global warming potential = CO₂ eq, also referred to as carbon footprint)
- PhD: Impact of planting 1 ha of commercial forest



LIFE CYCLE IMPACTS

Global Warming Potential (Tg CO₂)



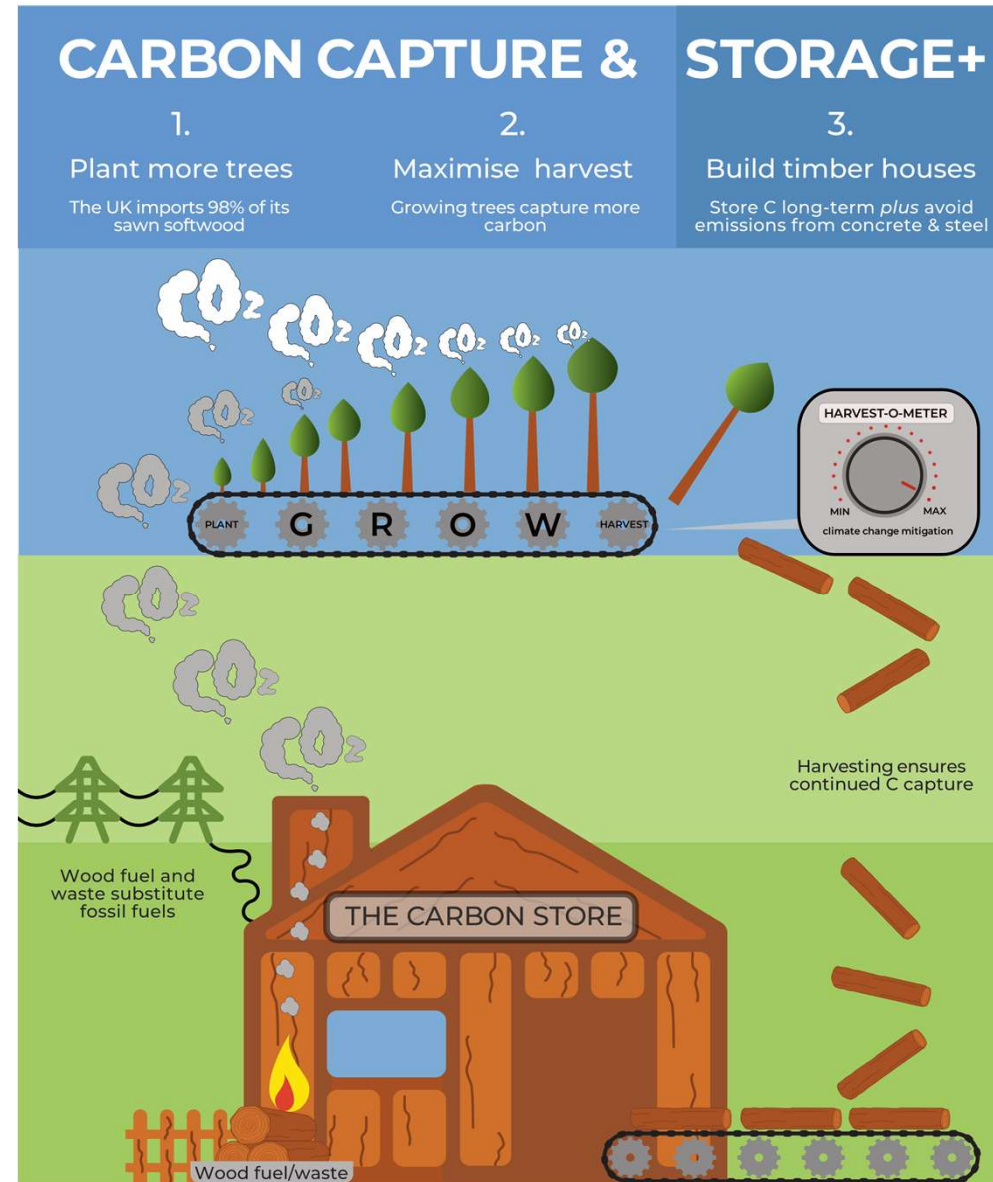
CARBON CAPTURE & STORAGE+

1. Harvesting ensures continued C capture
2. Store C long-term *plus*
3. Avoid emissions from concrete & steel
4. Avoids emissions from fossil fuels

70% of stored carbon is in building materials

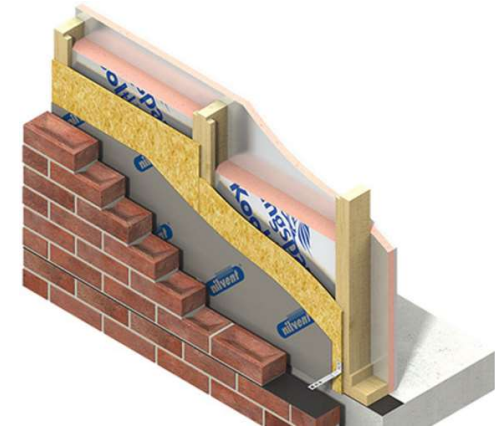
Avoided emissions doubles benefits

Recycling prolongs C storage and increases avoided emissions

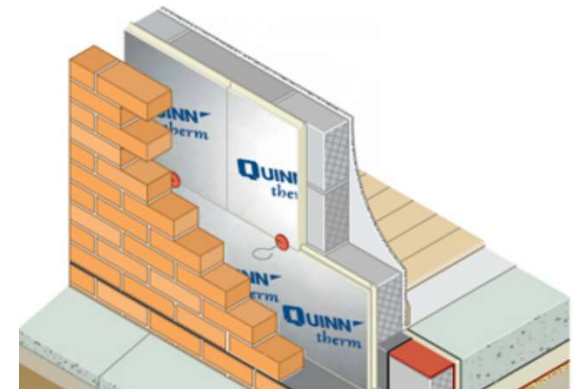


SUBSTITUTED MATERIALS = AVOIDED EMISSIONS

- Saving of 10,000 kg CO₂ eq in typical semi-detached (20% of total embodied C footprint)
- For every kg of wood use you reduce the C footprint
- For every kg of concrete or steel avoided you reduce the C footprint
- We can do more... cladding, windows, doors



Brick and block vs brick and timber frame



LOW CARBON HOUSING

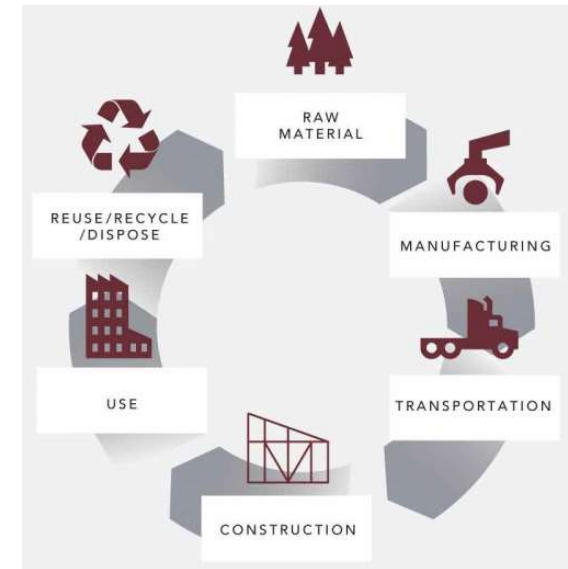
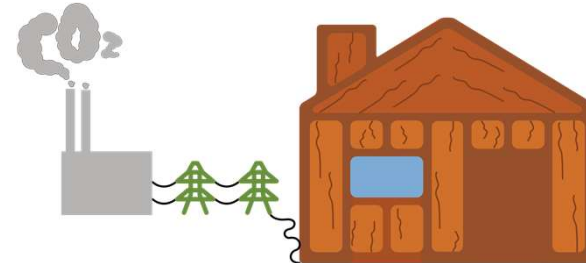
1. Embodied C

emissions released during production of a material/product



2. Operational C

emissions released during the use of a product throughout its life



POWER TO PROTECT OUR FUTURE

Got land?

Plant trees

- Growing trees capture and store carbon

Harvest trees

- Increase C capture and storage. Invest in your future. And make £££

Design houses?

Choose wood

- Avoid emissions from steel, brick and concrete
- Store C long term
- Drive forestry expansion



THANK YOU

CARBON CAPTURE &

1.

Plant more trees

The UK imports 98% of its
sawn softwood

2.

Harvest

Growing trees capture more
carbon

STORAGE+

3.

Build timber houses

Store C long-term *plus* avoid
emissions from concrete & steel

Eilidh Forster

Twitter: [@eilidh_forster](https://twitter.com/eilidh_forster)